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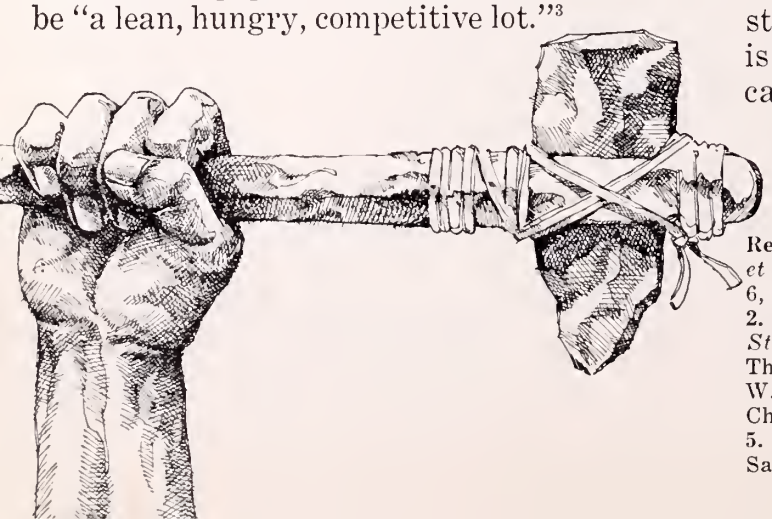
IF MORE MEN CRIED



At least seventy-five out of one hundred adults with duodenal ulcers are men.[1] Why? It may be significant that duodenal ulcer patients tend to crave recognition and are "especially vulnerable to threats to their manly assertive independence."[2]

Hypersecretion—an atavistic response. Stewart Wolf, who, with Harold G. Wolff, studied the personalities of duodenal ulcer patients, wonders if masculine competitiveness is related to "an atavistic urge to devour an adversary." It is striking, he reports, that an accentuation of gastric acid secretion and motility can be "induced in ulcer patients by discussions that arouse feelings of inadequacy, frustration and resentment."[2]

By chance? A lean, hungry lot. Was the link between emotions and gastric hyperacidity acquired through mutation to serve a purpose? During man's jungle period of evolution, the investigator points out, a male dealt with a foe by killing and devouring it. "It may be more than coincidence," he concludes, that peptic ulcer patients appear to be "a lean, hungry, competitive lot."[3]



Big boys don't cry. If more men cried, maybe fewer would wind up with duodenal ulcers. But men will be men—the sum total of their genes and what they are taught. Schottstaedt observes that when a mother admonishes her son who has hurt himself that big boys don't cry, she is teaching him stoicism.[4] Crying is the negation of everything society thinks of as manly. A boy starts defending his manhood at an early age.



Take away stress, you can take away symptoms. There is no question that stress plays a role in the etiology of duodenal ulcer. Alvarez[5] observes that many a man with an ulcer loses his symptoms the day he shuts up the office and starts out on a vacation. The problem is, the type of man likely to have an ulcer is the type least likely to take long vacations or take it easy at work.

The rest cure vs. the two-way action of Librax.® For most patients, the rest cure is as unrealistic as it is desirable. Still, the stress factor must be dealt with. And here is where the dual action of adjunctive Librax can help. Librax is the only drug that com-

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Hereditary Gallbladder Agenesis

Twelve Cases in the Same Family

Lawrence A. Nadeau, M.D., Wilfrid A. Cloutier, M.D., John T. Konecki, M.D., Gerard Morin, M.D. and Richard W. Taylor, M.D.*

Abstract

Two patients, proven at surgery to have absence of the gallbladder and cystic duct, were later found to be members of the same family. This prompted a search for the same condition in other members of the family. Thirty-five members of two generations were available for oral cholecystography. Ten of these had non-visualization of the gallbladder at a time when they were entirely asymptomatic.

The diagnosis of agenesis has heretofore been considered impossible preoperatively. It is now presumed in patients with a family history where there is no other explanation for nonfunctioning gallbladder. This study strongly supports the claim made by Kobacher[2] in 1950 that gallbladder agenesis is a hereditary trait. In all cases of absence of the gallbladder discovered in the future, immediate oral cholecystography on all members of the patient's family is indicated.

Absence of the gallbladder as an isolated anomaly in the adult is very rare. Although there were 150 cases reported in the literature by December 1967, when Frey completed his search, only 13 of them had been proven by operation, and only 43 confirmed by autopsy. When strict diagnostic criteria are applied, as recommended by Frey,[1] the incidence is much less than the usually quoted 150 cases.

Reports on familial gallbladder agenesis are extremely rare. Kobacher's report of gallbladder agenesis as a possible hereditary defect has stood alone for 20 years.[2] The present report is the second in history. We came upon this condition in a large family, all of whom have fortunately been very understanding and cooperative. This report now strongly supports Kobacher's claim.

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Report of Cases

Case #1: R. R. On his first admission, this 18-year-old male sought treatment for nausea and vomiting, especially in the morning, for 4 weeks. He had two episodes of epigastric pain during this time. PAST HISTORY, SYSTEMS REVIEW AND FAMILY HISTORY are all non-contributory. On PHYSICAL EXAMINATION, a slight scleral icterus was noted. There were no other positive findings. The abdomen was soft, and the liver and spleen were not palpable. From the laboratory, the only abnormal test was the serum bilirubin, and this ranged from 4.89 mgm% to 2.5 mgm% during the two weeks of hospitalization. The elevation occurred in the indirect fraction of bilirubin; the direct fraction remained normal. These other laboratory tests gave negative results; V.D.R.L., blood glucose, C.B.C., cephalin flocculation, platelet count, urinalysis, serum transaminase, prothrombin time, red cell fragility, alkaline phosphatase, thymol turbidity, heterophile antibody, reticulocyte count, and direct and indirect Coomb's tests.

Four oral cholecystographies were done on this patient, and non-visualization of the gallbladder resulted each time. An intravenous cholangiogram was done with laminography which showed a normal appearing common bile duct but no gallbladder visualization (Fig. 1).

Barium enema, chest and upper gastrointestinal x-ray studies were negative. The patient was readmitted six weeks later. During this interval, he had several episodes of epigastric pain, and several more tests of his serum bilirubin had shown slight elevations similar to the results during his first admission.

At laparotomy, no gallbladder could be found. There was no identifiable gallbladder bed and no fibrosis or evidence of previous inflammation in the area. The common duct was examined from the right and left hepatic ducts down to the duodenum. It was entirely normal with no cystic duct or fibrous band seen. The head of the pancreas was normal to inspection. The peritoneal reflection along the lateral border of the duodenum was then incised, and the duodenum and pancreas were reflected medially. The distal portion of the common duct was normal. Common duct exploration was not done.

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Fig 1. Case 1. Intravenous cholangiogram. No gallbladder is visualized.



Fig. 2. Case 2. T-tube cholangiogram done at time of surgery. No gallbladder is visualized.

This patient is now well and asymptomatic 8 years later.

Comment: This case satisfies Frey's criteria, except that the operative cholangiogram was not done. The intravenous cholangiogram, however, was done, and although this has less diagnostic value than a direct needle or T-tube cholangiogram, it would be expected to fill a normal intrahepatic gallbladder, if one were present.

Case #2: A 47-year-old male was admitted because of severe nosebleed and hypertension. He had a history of occasional dyspepsia. Oral cholecystography on two consecutive days showed no visualization of the gallbladder. An upper gastrointestinal series showed evidence of slight scarring of the antrum of the stomach and of the duodenal bulb. At laparotomy, no gallbladder could be found. The gallbladder bed contained no fibrous bands nor evidence of previous inflammatory process. Adhesions were found across the antrum of the stomach. The entire common duct was inspected from the right and left hepatic to the retroduodenal area of the sphincter. The common duct was explored and thick bile was discovered. A T-tube was inserted, and a cholangiogram done in the Operating Room showed normal ducts with no cystic duct or gallbladder (Fig. 2). Another T-tube cholangiogram was done 7 days after surgery, in multiple positions, and this also showed no cystic duct nor gallbladder (Fig. 3).



Fig. 3. Case 2. T-tube cholangiogram done seven days after surgery. Multiple views and fluoroscopic examinations failed to demonstrate a gallbladder.

Discussion: In this case, Frey's criteria are fully satisfied. This second patient is the uncle of the first patient, but even at the time of laparotomy, this relationship was not known and not recognized. The patients did not discuss their illnesses, and the first patient, a young man, moved out of town a short time after his surgery. Since he is the son of a sister of the second patient, his surname is different; furthermore, each patient was treated by a different internist and surgeon. Only by coincidence was the familial relationship recognized. This sequence is important to show that relationship could easily have gone unrecognized. In larger cities, familial incidence could certainly go unrecognized, and this may explain the rarity of reported cases of familial agenesis of the gallbladder.[3]

Family Tree

There are thirty-eight members in this family. Thirty-one were available for study. Two of these are reported here to have agenesis of the gallbladder proven by surgery. Twenty-nine others, all asymptomatic, had oral cholecystography and, of these, ten had non-visualization of the gallbladder. In all of those who have a gallbladder, it was easily seen on the first day of oral cholecystography. All of those who had non-visualization were given 6 tab-

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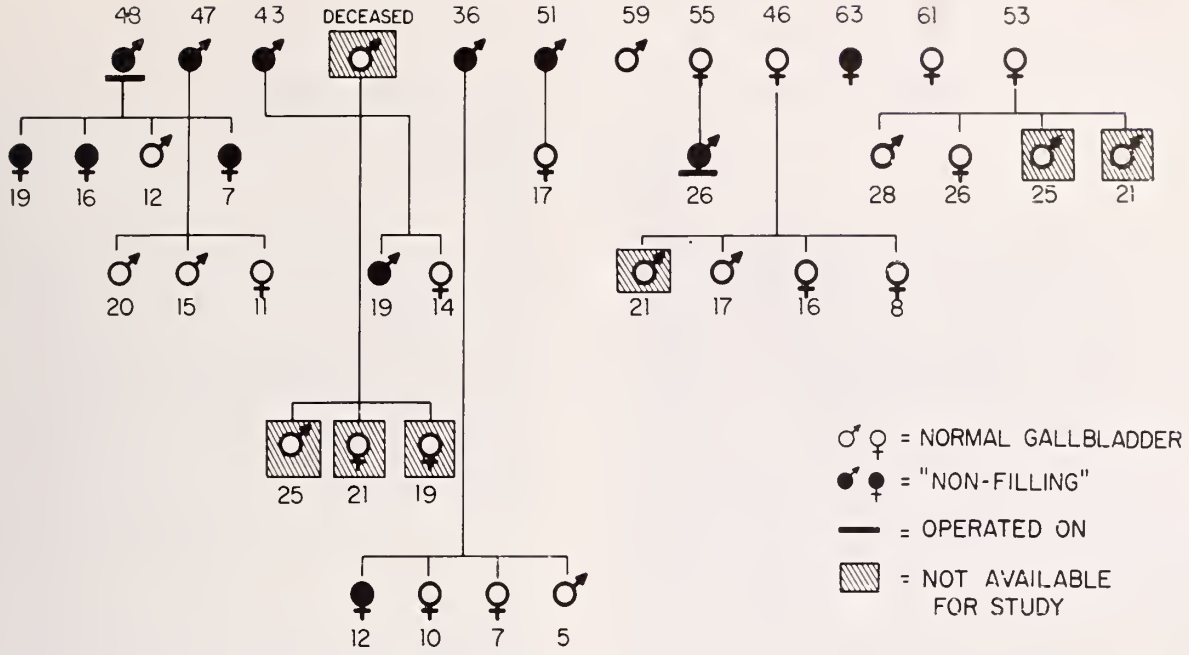


Fig. 4. Family Tree.

lets of iopanoic acid on two consecutive nights. When 12 young asymptomatic patients in the same family show non-visualization, it may be assumed that they have agenesis. Unfortunately, there is no easy or safe diagnostic procedure that would prove this. There is no history or sign of any other congenital abnormality in any of these patients. Two generations are available: the oldest is sixty-three and the youngest is five. All eleven living members of the first generation were available for study. Of six males studied in the first generation, five had no gallbladder, and of five females studied, only one had no gallbladder. A glance at the family tree (Fig. 4) will reveal that there is an opposite sex incidence in the second generation. This may be a significant genetic phenomenon, but is beyond the scope of this article, and may provide interesting material for genetic study by others.

Diagnosis

Frey has made an important contribution to the literature on this subject.[1] He has a complete review of the literature and critically evaluates the diagnosis in 150 reports. He states that, to be considered proven, the diagnosis of agenesis of the gallbladder based on operative findings must have been confirmed by direct cholangiography at or after operation, and by visualization of the biliary tract by operative dissection from the duodenum to the bifurcation of the hepatic duct. When his criteria are applied, many reports are found to present inadequate evidence.

Embryology

The embryology is discussed in a number of previous reports.[4,5,6,7,8,9] In the 4th to 5th week of life, a 4 mm. human embryo develops a bud from [illegible] will become the liver and the gallbladder. The bud grows cephalad and the [illegible] the liver and hepatic bile ducts. To the [illegible] the growing bud, there develops a second bud, the cystic diverticulum, and this is destined to become the gallbladder and cystic duct. Failure in organogenetic sequence at this point results in agenesis of the gallbladder. The cause of this defect is unknown, but the fact that it is hereditary in some cases is very probable in view of both Kobacher's report and this one. Hereditary gallbladder agenesis should, therefore, be added to the long list of hereditary defects to which humans are subject.

Clinical Features

In all previous reports of agenesis of the gallbladder, the condition presented a complete surprise to the surgeon at operation (the one exception is Kobacher's case which was suspected preoperatively on the basis of family history and non-visualization of the gallbladder). Yet the patient underwent surgery because of persistent symptoms. To the well-known causes of non-visualization of the gallbladder, i.e., (1) diseased gallbladder, (2) cystic duct occlusion, (3) serious liver damage, and (4) failure of absorption of the contrast medium from the gastrointestinal tract, we must now add (5) agenesis of the gallbladder.

Fortunately, the majority of patients with gallbladder agenesis never have biliary tract symptoms. It is well documented in the literature, however, that these patients are not free of disease in the biliary tree. Carcinoma of the common bile duct has been reported.[10] A surprisingly large number develop symptoms. Knowing the number

discovered at autopsy (43) and the number discovered at surgery (13), it can be estimated that 23% can be expected to have symptoms at sometime during life. These symptoms have been ascribed to various causes. Common duct stones have been found in a surprisingly high percentage of cases.[11,12] This proves that stones can form in the common duct in the absence of a gallbladder. Another cause of symptoms that has been postulated is spasticity of the Sphincter of Oddi.[13,6,14] Some patients have symptoms referable to the upper gastrointestinal tract and the bile ducts were found to be normal, and abdominal exploration failed to detect a cause for the symptoms.[13,15] Explanation of this is not always clear, and pancreatitis or psychogenic mechanisms have been postulated. Slight jaundice has been present in some of these patients. This is an unexplained phenomenon in some of the previously reported cases, and Case 1 of this report falls in that category.[4,8]

A difficult diagnostic problem will have to be faced if a member of a family with agenesis presents with symptoms. The result of a previous cholecystogram, if available, would be extremely important. It is obvious that oral cholecystography of all members of the family is indicated immediately after familial incidence is discovered. Intravenous cholangiography will be helpful in the symptomatic patient if it shows common duct stones. As stated in previous reports,[3,6,16] however, there is still no way to prove conclusively absence of the gallbladder preoperatively because oral cholecystography as well as intravenous cholangiography may give the same result (non-visualization) whether the gallbladder is diseased or absent. For a few of these patients, therefore, the diagnosis will still have to be made at surgery.

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THERE MAY BE A CURE FOR RABIES after all, and the cure may lie in the kind and scope of treatment given the person bitten by a rabid animal. Matthew Winkler, 7, is world's only known survivor of rabies, and he may owe his life to the treatment given him by **Michael Hattwick, M.D.**, of **Nat'l Center for Disease Control**, Atlanta. When it was evident vaccine shots were ineffective, Hattwick inserted a tube in the boy's throat to keep him from suffocating, drained off cranial fluid to prevent pressure buildup, monitored his heart to forestall cardiac arrhythmias, gave him Dilantin® to block convulsions and put him on oxygen. Matthew recovered, and Dr. Hattwick believes the technique can be applied by any competent M.D. He also believes that if the treatment is properly timed, it may well prove to be the cure for rabies. — **Medical News Report, Vol. 3, Number 50, December 20, 1971**

Current Concepts of Smallpox and Rubella Immunization

MELVIN I. MARKS, M.D.*

SMALLPOX VACCINATION

Although Jenner first observed the protective effect of vaccination in 1746, smallpox continues to be endemic in more than 20 countries in the world and still carries a mortality of approximately 30%[1] (Fig. 1). The continued application of vaccination programs in endemic countries is necessary for the further reduction in the incidence of smallpox. The risks of contracting smallpox in North America at this time, however, are very slight and many authorities now question the validity of mandatory vaccinations in our society.[2,3]



Fig. 1

Risks of Smallpox Vaccination

The efficacy of smallpox vaccine is outlined in Table 1 and represents a significant benefit in the prevention of disease.[1] The risks attendant to this protective effect have contributed to 68 deaths in the United States, in the years 1959 to 1966.[4] One-third of all deaths and 40% of all deaths from primary vaccination occurred in patients under the age of 1 year despite the fact that only 12% of all primary vaccinations were administered to children under 1 year.[4] These statistics support current recommendations of the American Academy of Pediatrics in which smallpox vaccination is suggested after the first year of life. Despite the warning of the above experience, many pediatricians continue to vaccinate their patients in the first 12 months of life.[5]

One of the most common complications of smallpox vaccination is cellulitis and superinfection with gram-positive bacteria usually group A beta hemolytic streptococcus (Fig. 2). This condition is often mistaken for early progressive vaccinia, however, it can usually be differentiated on the basis of the extensive erythema, warmth and tenderness around the lesions and by the culture of the infecting microorganism from the vaccination site. Penicillin therapy is effective. Auto-inoculation is another common complication of smallpox vaccination and may involve the eye or genital regions with some distress to the patient. Auto-inoculations are usually self-limited although troublesome areas, such as those mentioned above, may be treated by the administration of vaccinia immune globulin (VIG) (Fig. 3).

Generalized vaccinia is also a self-limited benign condition associated with smallpox vaccination and may be seen in patients with a slower than normal antibody response to vaccination. The lesions take on the appearance of papules, vesicles or pustules resembling primary vaccinations of a very minor degree. VIG may serve to



Fig. 2

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Table 1

Efficacy of Vaccinia[1]

Chance of attack in 1st year after vaccination = 1/1000 of unvaccinated subjects
Chance of attack within 3 years after vaccination = 1/200 of unvaccinated subjects
Chance of attack within 10 years after vaccination = 1/8 of unvaccinated subjects
Chance of attack within 20 years after vaccination = 1/2 of unvaccinated subjects

Table 2

VIG in Vaccinia[1] (0.6-1.2 ml/kg)

Eczema	— 25 children	
Varicella	— 14 children	no virus spread
Burns	— 5 children	
Postvaccina encephalitis	— 12	— no effect
Autoinoculation	— 27	— did well
Eczema vaccinatum	— 132	— 9 deaths (9%) (usual mortality 30-40%)
Generalized vaccinia	— 62	— did well 4 – recurrences
Vaccinia necrosum	— 23	— 30% mortality

Table 3

Methisazone Prophylaxis

Smallpox contacts (household)	*Cases of smallpox/deaths*
1100 — Drug	3/0
1100 — No Drug	78/12
Prev. unvaccinated:	
205 — Vacc. + Drug	4/2
209 — Vacc.	52/19
Prev. vaccinated:	
1987 — Vacc. + Drug	2/0
2380 — Vacc.	62/1



Fig. 3

shorten the course of the disease although recurrences are still possible.

Eczema vaccinatum is still a common complication of vaccination and a much feared one. Approximately 90,000 children/year in the United States have eczema among the 5 million children born.[6] It is interesting that recent statistics indicate most of the deaths from eczema vaccinatum occur in patients exposed to siblings who have been vaccinated rather than due to vaccination of the patients themselves.[4] An adult patient with this complication is illustrated in the accompanying Fig. 4. VIG is necessary in the treatment of these children and antiviral agents such as Methisazone may be useful in patients that do not respond to this therapy adequately.

Mortality may also be encountered due to vaccinia necrosum (progressive vaccinia). The adult patient with a chronic malignancy such as lymphocytic leukemia, diagnosed or unknown to the physician, may be vaccinated inadvertently for travel or other reasons, and end up with a fatal disease as illustrated in the accompanying Fig. 5. Similarly infants with immunological deficiency diseases, such as the patient illustrated with Swiss-type thymic alymphoplasia, may have this complication of vaccination (Fig. 6). Without treatment, progressive vaccinia is usually fatal.

Postvaccinal encephalitis is another serious complication which is seen 40 times more frequently under the age of 1 year in children vaccinated in the United States. Primary vaccination of adults may carry a high risk of this complication as well.[7] The disease may have serious sequelae and is associated with some mortality. There is no treatment available at the present time and the pathophysiology although not completely understood is thought to be auto-immune in nature.

Vaccinia Immune Globulin

The efficacy of VIG in the treatment and/or prevention of complications of smallpox vaccination are outlined in Table 2. Most of the work in this area was pioneered by Dr. C. Henry Kempe and vaccinia immune globulin is now commercially available in the U.S. and is a useful adjunct in the therapy of complications of vaccination.[8]

Methisazone (Thiosemicarbazone)

Antiviral agents have been used in the treatment of



Fig. 4



Fig. 5



Fig. 6

complications of smallpox vaccination as well as the prevention of smallpox in exposed contacts.[9–12] Methisazone has no therapeutic effect in patients with smallpox infection. The efficacy of the drug in prevention of smallpox disease is outlined in Table 3. Although useful in the prevention of complications of smallpox vaccination and in the prevention of disease, there is some attendant toxicity and the drug is a strong emetic. Another antiviral agent, 5-iodo-2'deoxyuridine, has also demonstrated *in vitro* activity against vaccinia virus, however has proved too toxic for general use.[9]

Future Prospects

In order to decrease the complications of smallpox vaccination outlined above and yet enable United States citizens to maintain a relative degree of herd immunity to smallpox, a number of attenuated vaccines are being developed. One such vaccine, CVI-78, has been investigated extensively by Dr. C. Henry Kempe and has proved to be without any systemic toxicity in a large number of patients tested so far.[6,13] More than 2000 patients with eczema have been vaccinated without any complications other than erythema multiforme of a benign self-limited nature and some local erythema and fever. More than 500 of these patients have been revaccinated with regular vaccine for travel to endemic areas without any serious sequelae. The future prospects for these attenuated vaccines seem bright and may offer the best solution to our current dilemma regarding vaccination in non-endemic areas of the world. The reader is referred to recent publications for a more detailed discussion of the U.S. "routine" smallpox vaccination policy.[3,7,14,15]

Rubella Immunization

Attempts to prevent the development of congenital ru-

Table 4

Rubella Vaccination: Persistence of Antibody[16]

	60 days	2 years	4X titer drop
Seronegative contact controls	<1/8	1/63	21%
Seronegative vaccinees	1/94		
Seropositive controls	1/286	1/160	31%

Table 5

Rubella Immunization[17,18]

	active disease	serological conversion	no disease or conversion
vaccine induced immunity	0	45-80%	55%
natural induced immunity	0	1.3%	98.7%
non-immune	60%	100%	0

Table 6

Pregnant Women[24]

# Pregnant Women Vaccinated	# Spont. Abort.	# Ther. Abort.	Virus and/or Histopath.	Normal Births
105 12 known seronegative	2	4	3*	6
93 immune status unknown	6	64	1	23

*Virus persisted in placental tissue X 69 days post-vaccination

bella infection by attenuated rubella vaccines are currently in progress. Vaccinating a population for the purpose of preventing disease in the offspring of the vaccinees and/or the mother of a vaccinee represents a unique application of immunization and presents specific problems. On one hand, the vaccine has demonstrated excellent persistence of antibody titers over the first two years of its use (Table 4).[16] A high incidence of serological reinfection (but not clinical illness) however has caused some concern (Table 5).[17–19] The reinfections may represent asymptomatic viremia and therefore the possibility of congenital infection. Current investigation in progress would seem to indicate that these patients are colonized with a small quantity of virus in the nasopharynx and rarely, if ever, have a significant viremia during these serological reinfections. If this proves to be correct, the phenomenon of reinfection may strictly be an antibody "boost" of no consequence to the fetus.

Ogra has recently discussed the role of nasal antibody in the prevention of carriage of rubella virus in the nasopharynx.[20] His work indicates that vaccinees who are immunized by the subcutaneous route carry more virus in the nasopharynx than individuals naturally infected or those immunized by the nasal route. The questions raised by this data include the important one of introduction of virus into the household by asymptomatic nasal carriage in vaccinated children. The risks of this exposure to the susceptible mother and/or other occupants of the household may be an unrecognized problem at this point. Investigation in this area and those outlined above should serve to clarify the optimal route of vaccination and the optimal age group for vaccination. In view of the relatively high incidence of arthralgia and other complications of vaccination,[21–23] we must consider all of these questions very carefully in our future plans for mass vaccination. The long-term sequelae and safety of these vaccines are yet to be evaluated.

Many authorities have adopted a variety of approaches to the current usage of rubella vaccine and combinations of these approaches are in effect in many parts of the world: one can immunize 1) all the young children; 2) all children upon admission to grade school; 3) all seronegative adult females in the immediate postpartum period; 4) girls between the ages of 11 and 13, in situations in which the risk of pregnancy is minimal. Transmission of the vaccine virus to fetal tissue has been demonstrated as illustrated in Table 6.[24,25] It is beyond the scope of this discussion to recommend one or another program of rubella immunization as the optimal and safest one has yet to be decided upon. The problems outlined above are discussed in more detail by other reviewers.[26,27] Congenital rubella is a dreaded disease with serious consequences and the theoretical considerations outlined above should not detract from the importance of preventing this disease whenever and however possible, according to current concepts and knowledge. The intelligent use of state health laboratory facilities in the diagnosis and/or prevention of this complication is mandatory.

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Continued on Page 13



CAMPBELL'S SOUPS IN DIABETIC DIETS*

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* These recommendations are based on a *one cup portion* when prepared according to directions on the label. If milk is used in the preparation use part of your daily requirement.

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1. Demeulenaere, L.: Action du R 1132 sur le transit gastro-intestinal, Acta gastroent. Belg. 21:674-680 (Sept.-Oct.) 1958.

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Warnings: Lomotil should be used with caution in patients taking barbiturates and, if not contraindicated, in patients with cirrhosis, advanced liver disease or impaired liver function.

Precautions: Lomotil is classified as a Schedule V substance by Federal Law with theoretically possible addictive potential at high dosage; this is not ordinarily a clinical problem. Use Lomotil with considerable caution in patients receiving addicting drugs. Recommended dosages



should not be exceeded, and medication should be kept out of reach of children. Signs of accidental overdosage may include severe respiratory depression, flushing, lethargy or coma, hypotonic reflexes, nystagmus, pinpoint pupils, tachycardia; continuous observation is necessary. The subtherapeutic amount of atropine sulfate is added to discourage deliberate overdosage.

Adverse Reactions: Side effects reported with Lomotil therapy include nausea, sedation, dizziness, vomiting, pruritus, restlessness, abdominal discomfort, headache, angioneurotic edema, giant urticaria, lethargy, anorexia, numbness of the extremities, atropine effects, swelling of the gums, euphoria, depression and malaise.

Overdosage: The medication should be kept out of reach of children since accidental overdosage may cause severe, even fatal, respiratory depression.

Dosage: The recommended average initial daily dosages, given in divided doses until diarrhea is controlled, are as follows:

Children:
3-6 mo....½ tsp.* t.i.d. (3 mg.)
6-12 mo...½ tsp. q.i.d. (4 mg.)
1-2 yr.....½ tsp. 5 times daily (5 mg.)
2-5 yr.....1 tsp. t.i.d. (6 mg.)
5-8 yr.....1 tsp. q.i.d. (8 mg.)
8-12 yr....1 tsp. 5 times daily (10 mg.)
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*Based on 4 cc. per teaspoonful.

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Identification of the "Male Chromatin Body"*

Erwin G. Rerrick, M.D.**

Caspersson et al[1,2,3] have discovered that quinacrine mustard has the best selective labeling property of DNA in mammalian and plant chromosomes. Zech[4] has reported that the distal half of the long arm of the Y chromosome fluoresces brightly when stained with quinacrine mustard (Q.M.) and quinacrine dihydrochloride ('Atebrin', G. Gurr) was used by Vosa.[5] Pearson et al[6] using the same compound were able to demonstrate the presence of brightly fluorescing Y chromosome in metaphase plates of mitotic cells, in spermatozoa and in interphase cell nuclei from the buccal mucosa. George[7] noted difference in the dye binding pattern of various chromosomes.

Oral mucosal cells from males with and without Y chromosome anomalies were stained for 5 minutes in 0.5% aqueous solution of quinacrine mustard dihydrochloride (Q.M.). The cells were examined with Leitz Ortholux microscope using a 530 nm. barrier filter and BG 12 excitor filter.

The cells from male patients are easily identified by the single, brilliant fluorescing body (Fig. 1). A patient with an XYY/XXYY karyotype reveals two brilliant bodies in the nuclei of the buccal mucosal cells (Fig. 2). No similar fluorescing bodies were seen in cells from females.

While the female sex chromatin body is rather easily identified by staining procedures as a small chromatin mass on the nuclear membrane, there was no way to identify the male chromatin body. The discovery of differential fluorescent staining property of the male sex chromatin body, the Y chromosome and some of the somatic chromosomes opened a new avenue in human cytogenetics.



Fig. 1

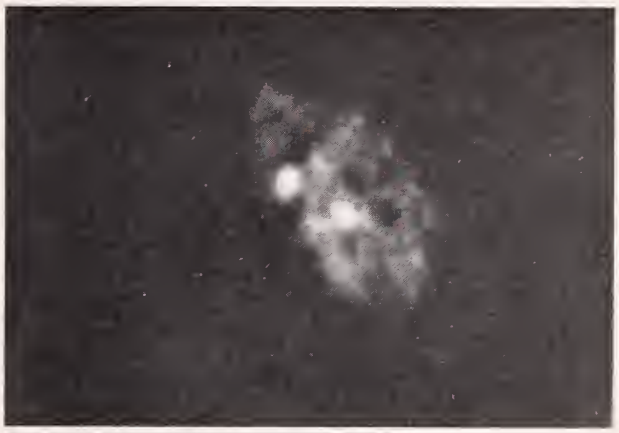


Fig. 2

ACKNOWLEDGEMENT

We wish to express our thanks to S. Archer, Ph.D., Associate Research Director at the Sterling-Winthrop Research Institute, Rensselaer, N.Y. for the complimentary supply of quinacrine mustard and also to Mr. K. Allen for the photography.

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**From the Department of Research: Peter W. Bowman, M.D., Director and the Department of Pathology; Erwin G. Rerrick, M.D., Director, Pineland Hospital and Training Center, Pownal. Maine 04069.

Arterial Acid-Base Diagram*

William H. Austin, M.D.

Arterial Pattern-Analysis Diagram

A pattern approach to acid-base problems has emerged in the last few years[1,2,3] as a method of assessing the nature or course of a defect and has proven valuable in teaching as well as treating acid-base derangements. Our work with this approach in the past has largely been confined to peripheral venous blood, but could be easily applied to arterial samples. In fact, the original Acid-Base Pattern-Analysis Diagram was derived in part from "corrected" arterial blood samples.[2,3] For use with samples, particularly from patients with respiratory problems and those on ventilators, it seemed appropriate to construct a diagram solely for use with arterial blood. The sources for the cardinal and mixed defects used in preparing this diagram[2,3,4,5,6,7,8,9,10] are derived almost entirely from arterial blood. However, it has been established[11,12,13] that one can predict the pH and PCO_2 of arterial blood from venous blood in most cases.

In preparing the diagram, the two dependent variables (HCO_3^- or CO_2 content and PCO_2) are plotted against one another. PH is used, although it is not made an integral part of the diagram. The pH can be viewed as a resultant of CO_2 content and PCO_2, the two correctable entities.

With these facts in mind, an arterial pattern-analysis diagram (Fig. 1) has been constructed, with PCO_2 and CO_2 content being the coordinates. A companion nomogram relating pH, PCO_2 and CO_2 content is placed beside the Pattern-Analysis Diagram for rapid calculation of a third unknown from any two known variables. The values can be transferred to the diagram for analysis. Columns with date and time are also provided so numerical values may be recorded and examined. The benefit of presenting data graphically as well as numerically are obvious. The rationale for constructing a clinical diagram has been outlined in earlier papers and needs no detailed discussion here.[1,2,3] In brief, the diagram examines disorders from the physiological point of view rather than from the chemical aspect. It outlines the expected degree of compensation, be it metabolic or respiratory, for a given defect, and depicts the anticipated patterns for mixed metabolic and respiratory disorders. Needless to say, all of these are based on clinical rather than laboratory experience.

Note should be made of the fact that mixed defect 2 and metabolic alkalosis are encompassed in a single area. This was done to emphasize the fact that two defects are frequently difficult to distinguish in patients on ventilators, especially if a Levine or gastrostomy tube is in place. The failure of clear-cut separation on the diagram does not detract from the value of the plots, which provides a key to correction irrespective of the precise etiology.

It must be remembered[11,12,13] that the plot does not necessarily diagnose the initial defect in all cases, especially if the patient is being treated or if a steady state does not exist. It may only point out some stage of the abnormality as it exists at a given moment. By plotting the acid-base imbalance, one may gain insight into the type of corrective measures necessary for rectifying the particular defect. Our experience over the past few years with patients undergoing open heart surgery and on ventilators on whom this diagram was utilized has been most gratifying. We feel the physician has not only been able to more easily grasp the concepts of acid-base balance, but finds it easier to manage his patient with such a device.

Summary

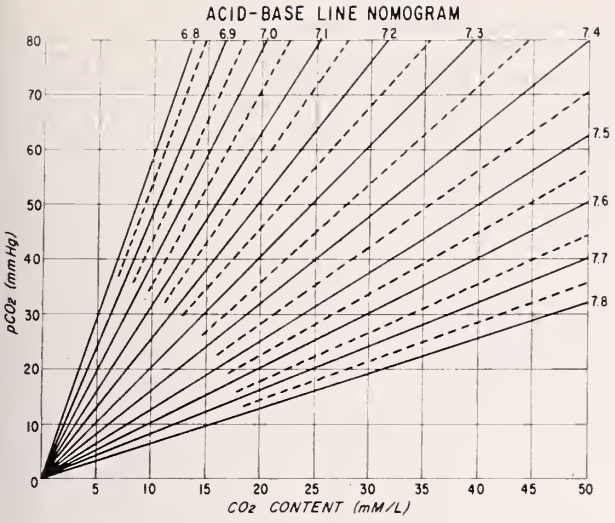
A Pattern-Analysis Diagram is presented for arterial blood and its use is discussed. Note is made of the value of pattern analysis for acid-base imbalance in post operative open heart and ventilator patients.

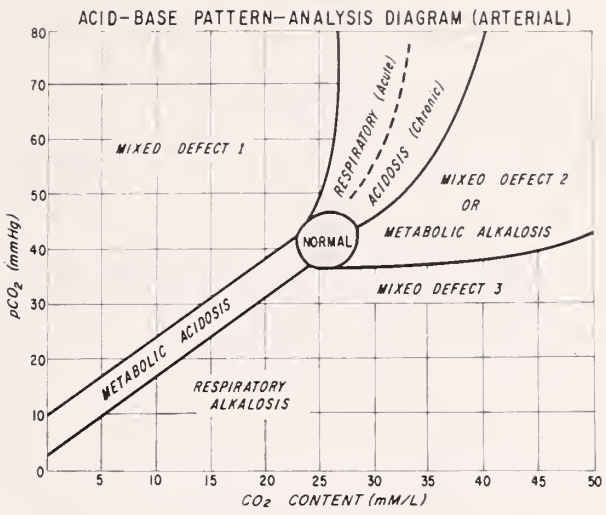
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*This work supported by the Maine Heart Association.

125 Chadwick Street, Portland, Maine 04102





CO_2 content approximately equivalent to Bicarbonate (HCO_3^-)

Date										
Time										
pH										
PCO_2										
CO_2										
PO_2										

Patient _____ Division _____ Hosp. No. _____

Comments _____

Fig. 1. Form used for reporting blood gases. Note: Form is designed so that serial values may be reported in both numerical and diagrammatic fashion. This allows the observer to make a rapid assessment of the patient's progress. Space is made available for recording the oxygen tension when desired.

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The Colony, Kennebunkport, Maine

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Influence of Normal Activity on the Acid-Base Status of Venous Blood*

William H. Austin, M.D.

In recent years, there has been an increased interest in the use of venous blood for clinical acid-base studies. Several authors have reported their experience with venous blood, and concluded that an accurate estimation of the patients' acid-base status can be accomplished in both normal individuals and in patients with various disease states.[1–5] However, there are significant differences between the reported normal values and then too, other authorities maintain that the widespread use of venous blood may be grossly misleading in certain disorders.[6]

In our hands venous blood collected under rigidly controlled conditions has been found to accurately characterize the patients acid-base status with a degree of variability comparable to arterial blood[5]; therefore, we sought an explanation for the large variation reported in the literature.[2,3,5–7] As our patients were all at rest prior to veni-puncture, and usually no statement as to degree of activity is found in the protocols of the previously mentioned studies, we suspected that moderate activity might affect the normal acid-base values. To test this hypothesis, we studied the acid-base balance of eight individuals during ordinary activity, and again after 10 minutes of rest. The results demonstrate that ordinary activity significantly influences the acid base parameters, causing an increase in the PCO_2 and CO_2 content and a decrease in the pH.

Eight healthy adults ranging in age from 19 to 38 years of age were used for this study. In order to secure venous blood samples during normal activity, subjects were not given special instructions and had been carrying out their usual duties as nurses and hospital personnel. Hence their activity, although somewhat variable, was that which is to be expected when unselected ambulatory individuals are studied. After being seated, venous blood was drawn from an antecubital vein into a heparinzed syringe, using light stasis without hand pumping. All samples were obtained within thirty seconds after application of the tourniquet. The subjects were then placed in a low Fowler's position for ten minutes and sampling was repeated. A ten minute rest period was found to be adequate, as it yielded values in the same range we found in normal individuals on more prolonged bedrest.

The samples were measured for pH and CO_2 content. The pH was determined with an Orion 801 Research pH meter with a relative accuracy $\pm$.002. A thermostated capillary electrode (Metrohm EA 520) was used with a thermostated reference (Metrohm EA 421) and temperature-controlled liquid junction maintained at 37°C. $\pm$.1°.

*This work supported by the Maine Heart Association.

Table 1

Subject	Sex & Age	Active pH	Active CO_2	Active pCO_2	At Rest pH	At Rest CO_2	At Rest pCO_2
1	M 35	7.346	28.1	51.9	7.386	25.2	41.8
2	F 32	7.367	28.4	49.2	7.406	26.2	41.6
3	M 35	7.294	28.1	57.5	7.366	25.7	44.5
4	F 19	7.320	26.5	51.1	7.344	24.8	45.5
5	F 36	7.324	27.1	51.9	7.372	26.5	45.2
6	F 38	7.312	28.4	55.7	7.389	28.2	46.3
7	F 20	7.356	28.7	50.8	7.384	27.9	46.4
8	F 20	7.362	26.6	46.3	7.372	26.5	44.5
Mean		7.335	27.73	51.80	7.377	26.38	44.47
S.D.		$\pm$.027	$\pm$1.24	$\pm$3.51	$\pm$.017	$\pm$1.20	$\pm$1.85

Sample handling, preparation of buffers and standardization were in accord with techniques described elsewhere.[5] CO_2 content was measured on plasma with the Van Slyke apparatus.[8] The PCO_2 was calculated using tables and constants previously described by us.[5]

Results

All subjects had higher PCO_2s and CO_2 contents with lower pH during ordinary activity than after a ten minute rest period. These data are presented in Table 1. The PCO_2 values during activity had a mean of 51.8 $\pm$ 3.5 while after the rest period the mean had decreased to 44.5 $\pm$ 1.85. Thus the active values are higher and more variable than after rest. This difference is highly significant ($p < .001$). The average pH was 7.335 $\pm$.027 during activity and 7.377 $\pm$.017 after the rest period. This difference of .042 pH units is significant at the .01 level. The values for the CO_2 content during activity and after rest were 27.73 $\pm$ 1.24 and 26.38 $\pm$ 1.2 respectively ($p < .05$).

Both the individual resting values and the mean of the group are within our normal range.[5] Although the possibility was not excluded by this study, it seems unlikely that a longer period of rest would have produced significantly different values. A shorter period, however, is inadequate as three subjects, studied after five minutes of rest, showed much less change than the group resting for ten minutes.

Discussion

Our results demonstrate that ordinary activity affects the acid-base balance of venous blood in a predictable fashion. In every case, the PCO_2 and CO_2 content increased while the pH decreased. These changes are in the same direction as reported by Sproule et al[4] during vigo-

rous exercises. Quantitatively, however, significant differences are noted. During severe exercise, the pH and PCO_2 changes are much more pronounced, while the increase in the CO_2 content is less marked than during ordinary activity. This disparity may result from quantitative differences in CO_2 production and lactate formation.

It is probable that the acid-base alterations during moderate activity are due primarily to increased CO_2 production. During severe exercise, however, lactate formation due to anaerobic metabolism is more pronounced[10] and its effects should outweigh the simultaneously increased CO_2 production. Increased CO_2 production and anaerobic metabolism have a similar effect on the pH and PCO_2. The former leads to an increase in dissolved CO_2 and carbonic acid elevating the PCO_2 and lowering the pH. The latter depresses the pH by the formation of lactic acid which, in turn, reacts with HCO_3^- to cause an elevation of the PCO_2. By contrast, increased CO_2 production and lactate accumulation have opposite effects on the CO_2 content; increased CO_2 production elevates the CO_2 content while lactate accumulation lowers it. Thus, the less pronounced rise in CO_2 content during severe exercise as compared to moderate activity is the result of two counteracting processes, one tending to raise the CO_2 content, and the other tending to lower it.

The demonstration that moderate exercise significantly affects the venous blood acid-base parameters has definite clinical implications. In the past, major emphasis has been placed in avoiding stasis, eliminating hand movements, and maintaining the tourniquet in place while the blood is being drawn, but limitation of activity, while sometimes recommended,[9] has not been stressed. This study clearly establishes that all subjects should be at rest prior to sampling when venous blood is to be used for acid-base evaluation.

Summary

The effect of ordinary activity on the normal acid-base parameters of venous blood has been evaluated in eight subjects and found to cause significant increases in the PCO_2 and CO_2 content and a decrease in the pH. It is recommended that activity be limited for at least a ten minute period prior to veni-puncture if an accurate evaluation of the patients' acid-base status is desired.

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CURRENT CONCEPTS OF SMALLPOX AND RUBELLA IMMUNIZATION

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Maine Heart Association Notes

20 Winter Street, Augusta, Maine

The Role of Glucagon in Cardiac Therapy

Until recently, glucagon has been of primary interest only to the endocrinologist and biochemist. . . . its primary physiologic role appears to be related to the maintenance of glucose levels in the blood. . . . Although it has been known for more than a decade than pharmacologic doses of glucagon have cardiovascular actions, it has only been in the last three or four years that attention has been paid to the potential therapeutic implications of these effects. . . . In a bolus dose of approximately 50 mcg. per kilogram, glucagon produces a slight increase in heart rate, a moderate increase in cardiac output and little or no change in arterial pressure or systemic vascular resistance. The effects from a single bolus dose last for approximately 15 minutes, although these effects can be prolonged by constant intravenous infusion.

These effects are regularly seen when glucagon is given to normal persons, patients with mild cardiac disease, or patients with acute myocardial infarction who have experienced a first episode of congestive heart failure. In patients with more chronic . . . heart disease, however, the hemodynamic effects . . . appear to be of lesser importance. . . .

The ability of glucagon to maintain its cardiac actions despite beta-adrenergic blockade suggests a potential therapeutic use for this agent. For example, there are many patients receiving beta-adrenergic blocking agents . . . for arrhythmias, angina pectoris or subaortic stenosis. In such patients severe acute episodes of heart failure may develop . . . and require emergency treatment. Since the effects of the catecholamines may be limited by the beta blockade itself, glucagon may be a useful inotropic agent to consider in this setting, together with conventional therapy.

. . . Since glucagon increases atrioventricular-conduction, it might be useful in patients with incomplete atrioventricular block. Furthermore, its apparent lack of arrhythmogenic properties suggests that it might be useful in patients in whom arrhythmias develop with other agents, such as the catecholamines. Although antiarrhythmic properties . . . have been described in digitalis toxicity, much of this antiarrhythmic action may be mediated by its chronotropic effects, ... It is also possible that the metabolic effects of glucagon contribute some antiarrythmic effects. . . .

The primary side effects of glucagon relate to nausea and vomiting, which appears to be dose related and generally occur at dose levels above 50 mcg. per kilogram (bolus)

The effects of glucagon are likely to be more important in a first episode of heart failure in a patient with little underlying disease. It is precisely in this setting, however, that other, more standard measures of therapy are usually beneficial and should be considered as primary measures. . . . Glucagon may be of benefit, however, in selected cases involving beta blockage toxicity, atrioventricular block or heart failure, or in patients sensitive to the production of arrhythmias by conventional inotropic agents. . . . it should probably be regarded only as an adjunct to more standard therapeutic measures, and not as the first line drug of choice.

Submitted by Jacob B. Dana, M.D., Maine Heart Association. Reference: Parmley, William W. Editorial-New England Journal of Medicine, Vol. 285, pp. 801-802, 1971.

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AHS's Measures to Help Hold Down the Cost of Medical Care

We have only to look at this morning's newspaper to see that the American public is becoming more and more concerned about the rate of rise in the cost of health care. The delivery and financing of care promises to be a major issue in the upcoming presidential primaries and the 1972 election. Many expect that the next Congress will pass some sort of universal health act — probably a moderate one but perhaps a more radical plan.

Sharing the public's concern, Associated Hospital Service has intensified its efforts to provide benefits for quality medical care at the lowest possible cost. AHS has taken four major steps to help hold down the cost of medical care.

Out-patient Diagnostic Benefits

Over the course of the last few years, AHS has expanded its out-patient diagnostic program. At present, Blue Cross pays hospitals for out-patient X-rays (except teeth), EKG's (up to $15 a day), EEG's, radioisotope exams, PBI's, and pathology exams of spinal fluid or surgically removed tissue. Blue Shield will pay private physicians for the same services rendered in the office, home or OPD. Both Blue Cross and Blue Shield exclude exams performed as part of a routine physical.

In addition, Blue Cross has initiated a pre-admission testing program. All diagnostic laboratory exams are covered when followed within ten days by an in-patient admission for related surgery. The intent, of course, is to encourage physicians to do as much as possible of a pre-surgical workup on an out-patient basis.

Blue Shield, on a one-year trial basis, is currently providing physician benefits for endoscopic procedures performed on an out-patient basis (except when part of a routine physical).

New Programs

AHS is now involved in some new programs specifically designed to hold down costs by providing benefits for care in settings other than an acute hospital. Blue Cross and Blue Shield are providing benefits on a pilot basis for care rendered to patients under 65 in any of several participating ECF's around the State. AHS is also presently negotiating with the State's home health agencies to establish Coordinated Home Health Care programs. Such programs, when established, will provide benefits for nursing care and related care in the home for patients under 65 who are discharged from the hospital earlier than would be the case if the plan were not available.

In addition, AHS stands ready to play an administrative or underwriting role in any of the new alternative delivery systems — HMO's, other types of prepaid group practice, foundations for medical care, etc. A number of such projects are now in various stages of planning.

Utilization Review

AHS is currently in the initial educational phase of a utilization review program designed to encourage the conservation of acute hospital beds for patients who require in-patient hospital care. Following the educational phase, AHS will begin to deny payments when a determination is made that a stay is not medically necessary. This determination may be made by the hospital's Utilization Review Committee, the AHS Medical Director, or in controversial cases by the appropriate Peer Review Committee.

Blue Shield, meanwhile, will continue to submit problematic claims or patterns of care to the Maine Medical Association's Committee on Health Care Financing (or the appropriate Peer Review Committee) for their determination.

Coordination of Benefits

Many doctors know that there are a few patients who make profit out of illness by combining benefits of several health insurance policies available through their place of employment, their relatives, or associations. This practice makes coverage more expensive for everybody in the long run.

Group purchasers are becoming increasingly concerned about this problem of duplication of payment and many have requested that a "coordination of benefits" provision be inserted in their master contracts. This provides that Blue Cross and Blue Shield benefits can be reduced to an amount which, together with other group health coverage, will not exceed 100% of the actual cost of care. Through this contract provision, the subscriber receives full payment for covered services, and the savings are passed on in the form of lower rates for all.

Conclusion

The public has become increasingly critical of the spiraling cost of health care. As trustee for a large percentage of the health care dollars spent in Maine, AHS has an obligation to see that the money entrusted to it is spent in the wisest possible way. We request the cooperation of physicians and providers in carrying out the four-point program described above.

What We Said 16 Years Ago

CUMBERLAND COUNTY MEDICAL SOCIETY

Committee for study of the problem of establishing a Medical School in Maine
Minutes of Meeting Held December 29, 1955

The meeting was called to order at 8:45 p.m. by Dr. Herrick, Chairman. Eighteen members were present as listed below.

In his opening remarks, Dr. Herrick pointed out that this meeting was to be in the nature of an exploratory or probing discussion, and asked each member to express his views on the desirability, necessity, and feasibility of a medical school in Maine. He further raised the questions as to whether the school should be privately or State supported, and whether it should perhaps be established in association with another medical school, Dartmouth for example.

Dr. Francis Dooley expressed the view that a medical school in Maine is necessary, and that it would be desirable to re-establish the Medical School of Maine. He pointed out that good clinical material is available, and that funds for salaries could be procured from private sources, sufficient to attract a good faculty.

Dr. Eugene O'Donnell agreed as to the desirability of a Medical School in Maine but raised the question as to its necessity in the overall view of the medical care problem and the economy of the State of Maine. He felt that the problem should be considered in terms of its effect on the care of the sick in comparison with alternative plans, and raised the question as to whether the school should be located in Portland or in some other area of the State.

Dr. Donald Marshall, Chairman of the Maine Medical Association Committee for Establishment of a Medical School, pointed out that 55% of Maine premedical students are admitted to Medical School as compared with about 44% in Massachusetts. He noted that many outlying towns have only one or two physicians, and that the average age of rural physicians is probably rather high. He felt that a Medical School would largely solve the problems of supplying younger physicians throughout the rural areas. He felt that the Marine Hospital would be a logical site of a Medical School, and might be acquired from the United States Government via the State Government. He expressed the view that sufficient funds for establishment of a Grade A Medical School could probably be obtained from philanthropic foundations and other sources.

Dr. Eugene Drake expressed the view that a Medical School is necessary in Maine. He pointed out that the Maine Medical Association has gone on record in favor of such a school. He noted that the Directors of the Maine General Hospital voted in 1946 to make the hospital available as a teaching facility, and suggested the possibility that the Maine Eye and Ear Infirmary Building might be available as a school building. He felt that a large share of the Merritt Garcelon Fund Scholarships would logically go to a Medical School of Maine, and that adequate clinical material could certainly be available. He noted that the conditions previously favoring location of the school in Bangor no longer existed. It was his view that rural medical care would certainly be improved, and that it was appropriate for action establishing a Medical School be initiated by a committee of the Cumberland County Medical Society. He pointed out that establishment of such a school would involve considerable personal sacrifice on the part of the younger physicians in the Portland area.

Dr. Langdon Thaxter, stating that he was originally not in favor of a Medical School, agreed as to the desirability of a fact-finding committee. He felt that the questions of necessity, costs, and feasibility should be thoroughly explored at the outset. He pointed out that the cost of educating a medical student was three times as great as that of other graduate students, and pointed out that at Harvard Medical School the cost of educating each man was approximately $40,000. He concluded that his mind was open on the subject provided that the financial obstacles could be overcome.

Dr. Elton Blaisdell felt that a school is desirable but that the necessity is open to question. He estimated that approximately twelve to twenty million dollars would be needed to establish a school and that maintenance costs would be considerable. He raised the question as to what percentage of graduates of a two year school would remain in the State after graduation. He speculated as to whether the City of Portland would become over-saturated with physicians, with the excess being forced into rural areas. He questioned whether inducements would be necessary to retain graduates in the State, possibly smaller tuition in exchange for agreement to go into rural practice. He pointed out that political angles are involved, including osteopathic obstruction. In summary he was in favor of establishment of a school but rather dubious as to the financial aspects.

Dr. Herrick pointed out that in addition to increasing the number of rural physicians, a Medical School would elevate the quality of city practice.

Dr. Isaac Webber expressed doubt as to the number of graduates that would remain in the State of Maine. He felt that the Medical School of Maine should aim to produce general practitioners rather than specialists, and should be more concerned with the art of medicine. He felt that foundations would be a likelier source of funds than the State Legislature.

Dr. James Parker pointed out that the number of applicants to medical school is progressively dropping in the United States, and felt that the committee should study the question of whether sufficient good material would be available for a school in the State.

Dr. Richard Hawkes pointed out that even with a stable population, the need for physicians is constantly increasing due to such factors as the demand for more and better medical care, increasing age of the population and the ever growing need for physicians in industry

military services, research activities and public health. He expressed himself as being in favor of establishment of a Medical School in Maine.

Dr. John Gibbons quoted from a report of the Maine Medical Association Committee on Medical Education and Hospitals, published in the Journal of the Maine Medical Association in September, 1954; pointing out that the legislature had passed an Enabling Act permitting Maine students to obtain medical training in other states. He raised the serious question as to whether the State of Maine could support a Medical School.

Dr. Ralf Martin expressed his firm belief that a Medical School is both desirable and necessary, and pointed out that the present time is particularly opportune for establishment of such a school.

Dr. Theodore Stevens felt that a school would be desirable but was not feasible, since he did not believe that the State of Maine could support a Medical School.

Dr. Joseph Porter felt that a school is desirable in view of the increasing demand for physicians. He pointed out that the annual budget for seventy five existing schools is $95,000,000, that is, over $1,000,000 each per year; approximately 48% of this amount is derived from government funds. Noting that less than 50% of operating expenses can be expected to be obtained from tuition, he emphasized the necessity for sufficient endowment for long term support and income. Finally, he pointed out that there is considerable feeling in this country that more Medical Schools are needed.

Dr. Charles Geer expressed doubt that a Medical School would solve the problems of rural medicine, since the trend appears to be toward specialization.

Dr. Albert Aranson expressed himself as being in favor of a Medical School and agreed that such a school should be slanted toward the general practitioner.

Dr. Ralf Martin pointed out that a number of medical schools throughout the country have placed emphasis on the training of general practitioners, and have very successfully solved the problem of supplying rural physicians.

Dr. Richard Goduti expressed his belief that if a new Medical School is needed, Portland can have one.

Dr. Harold Osher expressed the view that although a Medical School appeared to offer the best solution to the problem of improved quality and quantity of medical care, the Committee was obligated to study other possible methods of achieving this goal. In addition to the interstate agreement mentioned by Dr. Gibbons, the possibility of establishing improved residency programs and post-graduate training activities at hospitals throughout the State was raised. He pointed out that a large part of the financial obstacle could be overcome if the Marine Hospital or the Maine Eye and Ear Infirmary could be made available as a physical site for the school. He felt that it was the Committee's obligation to explore very thoroughly all potential public and private sources of financial support.

It was unanimously voted to pursue the problem further, and Dr. Herrick concluded the meeting by announcing that sub-committees would be appointed to carry out comprehensive study of the problem.

Respectfully submitted,
HAROLD L. OSHER, M.D.
Recording Secretary

Necrologies

FRANKLIN P. BALL, M.D.

1897-1971

Dr. Franklin P. Ball, 74, of Bingham, Maine died at his home on April 13. He was born in Waterville, Maine on January 6, 1897, son of Joseph Rice and Adelaide L. Ball.

Dr. Ball was graduated from McGill University Faculty of Medicine, receiving his medical degree in 1927. He took a post-graduate course at Montreal General Hospital from 1927 to 1928, then practiced in Solon from 1928 to 1929 before locating in Bingham. Dr. Ball served in both World Wars – World War I in the Canadian Army in France and World War II in Africa as a Major.

He was a member of the Somerset County Medical Society, the Maine Medical Association and the American Medical Association.

WALLACE B. SOMERVILLE, M.D.

1898-1971

Dr. Wallace B. Somerville, 73, who practiced medicine in the Mars Hill area for the past 43 years, died suddenly on November 2 in Monticello while he was attending to a patient.

Dr. Somerville was born on July 3, 1898 in Bristol, N.B., Canada, son of George W. and Bessie E. Somerville.

He attended Mt. Allison University in Sackville, N.B. and Harvard University and was graduated from McGill University Faculty of Medicine, receiving his medical degree in 1923.

Dr. Somerville was a member of the Aroostook County Medical Society, the Maine Medical Association and the American Medical Association.

Surviving are his widow, Lillian G. Somerville of Mars Hill; his mother of Bristol, N.B.; one son, Dr. Gordon W. Somerville of Rochester, Minnesota; two daughters, Mrs. Verlane Walsh of Mars Hill and Mrs. John Clark of Zephyr Hills, Florida; four brothers, Dr. Robert B. Somerville of Presque Isle, Dr. Donald A. Somerville of Bristol, N.B., G. A. Somerville of Florenceville, N.B. and Douglas Somerville of Fredericton, N.B.; one sister, Mrs. Helen Crocker of Moncton, N.B.; six grandchildren and several nieces and nephews.

CARL J. HEDIN, M.D.

1872-1971

Dr. Carl J. Hedin, 99, superintendent of the Bangor State Hospital from 1919 to 1948, died on November 12 at his home in Brewer, Maine.

Dr. Hedin was born in Wase, Sweden on February 15, 1971, son of Niles Johanson and Christina D. Hedin. He was graduated from grammar school in Sweden in 1886 and came to the United States in 1890. He settled in Proctor, Vermont and worked in the marble quarries and also on a farm in Dummerston, where he went to the country school to learn English.

Following his graduation from Mt. Hermon School in Northfield, Massachusetts in 1900, he attended Dartmouth Medical School receiving his medical degree in 1904. He interned and was assistant physician at the Massachusetts State Hospital in Tewksbury from 1904 to 1908. From 1908 to 1912, he was assistant physician and assistant superintendent at the Augusta State Hospital and was superintendent of the Pownal School

from 1912 to 1919, when he came to Bangor. In 1948, Dr. Hedin retired and engaged in private psychiatric practice.

Dr. Hedin was an honorary member of the Penobscot County Medical Society (serving as President in 1923) and the Maine Medical Association, having received a 50-year pin in 1954, a 55-year pin in 1959, a 60-year pin in 1964 and a 65-year pin in 1969. He was also a member of the American Medical Association, the American Psychiatric Association, a former president of the Maine Psychiatric Association, and a Diplomat of the American Board of Psychiatry and Neurology Society. Two buildings were named for him, the Hedin Hall at Bangor State Hospital and Hedin Hospital at Pineland, then known as Pownal.

Surviving are two daughters, Mrs. J. Philip Smith of Melrose, Massachusetts and Mrs. C. Lennart Carlson of Orono; three grandchilden and four great-grandchildren.

Rand A. Dunham, M.D.

1893-1971

Dr. Rand A. Dunham, 78, of Rye, New Hampshire died at Portsmouth Hospital on November 25. He was born in Phillips, Maine on November 20, 1893, son of Fred E. and Stella V. Dunham.

He was graduated from Stephens High School in Rumford, Bowdoin College and received his medical degree from Harvard Medical School in 1922. He took a one-year rotating internship at the Salem Hospital in Massachusetts. From 1923 to 1925, he practiced in Easton, then located in East Millinocket until four years ago when he moved to Rye, New Hampshire.

Dr. Dunham was a member of the Penobscot County Medical Society, the Maine Medical Association and the American Medical Association.

Surviving are his widow, Mabel Knight Dunham; a daughter, Mrs. Cynthia Pugh of Hopedale, Massachusetts; a brother, Dr. Frederick Dunham of Tavares, Florida; two grandchildren and a niece.

Anna Platt, M.D.

1888-1971

Dr. Anna Platt, 83, of Rockport, Maine died in a Rockland hospital on November 28 after a long illness.

Dr. Platt was born in Baltimore, Maryland on March 25, 1888, daughter of William D. and Anne Washburn Platt.

She was graduated from Bryn Mawr College in 1909 and received her medical degree from Johns Hopkins University School of Medicine in 1919. Following her internship at the Bellevue Hospital in New York City, Dr. Platt practiced in New York from 1921 until 1943. She was a member of the staff of the New York Hospital and New York Infirmary, and instructor in clinical medicine at Cornell Medical Center and school physician at the Nightingale-Bamford School in New York from 1922 until 1943. From 1943 to 1953, Dr. Platt lived in Friendship and then moved to Rockport. In 1947, Dr. Platt retired. She had been a trustee of the Knox County General Hospital in Rockland since 1947 and a director of the Florida Gulf Coast Arts Center, "Belleair," in Clearwater, Florida since 1946.

Dr. Platt was an honorary member of the Knox County Medical Society and the Maine Medical Association, having received a 50-year pin in 1969. She was also a member of the American Medical Association and a fellow of the New York Academy of Medicine.

Surviving is a niece, Mrs. Donald DeVeau of North Chevy Chase, Maryland.

County Society Notes

LINCOLN-SAGADAHOC

A meeting of the Lincoln-Sagadahoc County Medical Society was held on October 19, 1971 at the Ledges Inn in Wiscasset, Maine. The President, Dr. Frank O. Avantaggio, Jr., presided.

Dr. Alfred T. Holt spoke on the malpractice problem and urged that perhaps "individuals with guts" drop their malpractice insurance. After discussion, a show of hands revealed no one was ready to drop their malpractice.

Dr. Henry A. Hudson introduced Dr. Robert P. Timothy of Portland who delivered a talk on urethral reconstruction.

ANTHONY J. KEATING, M.D., *Secretary pro tem*

The regular monthly meeting of the Lincoln-Sagadahoc County Medical Society was held at the Ledges in Wiscasset, Maine on November 16, 1971.

The minutes of the October meeting were read and accepted as read.

Dr. Samuel L. Belknap reported for the Board of Censors recommending that this Society elect to Active Membership Drs. Peter F. McGuire and Elihu York, both of Brunswick. The names were put to vote and both were accepted unanimously to Active Membership.

There being no other business to bring before the meeting, Dr. Bostwick turned it over to Dr. Henry A. Hudson of the Program Committee who introduced Dr. Morrison, who expounded The Problem Oriented Record.

GEORGE W. BOSTWICK, M.D., *Secretary*

PENOBSCOT

On October 19, 1971, the initial meeting of the year of the Society, was held at the Millinocket Community Hospital with the President, Dr. John S. Houlihan, presiding. Approximately 34 members and guests were present. We were honored by the presence of Dr. Linus J. Stitham, President of the Maine Medical Association.

The reading of the minutes of the previous meeting was deferred at the request of the Society.

Treasurer's report: The detailed report was read by the treasurer, Dr. Philip R. Kimball, with the report being placed on file.

Committee report: The previously distributed executive council meeting minutes of September 8 and October 5 were briefly reviewed. Dr. Charles D. McEvoy, Jr. reported that the Homemaker-Health Aid Service, Counseling Center, has requested a permanent member for their board.

Old business: None.

New business: The following doctors were admitted to active membership in the Society: Drs. Bernoff A. Dahl, Charles E. Dixon, Philip G. Hunter, Dewayani C. Lathi, Subhashchandra G. Lathi, Don L. Maunz, John A. Ordway and John C. Schroder.

Dr. Philip G. Hunter spoke and presented slides on diagnostic uses of esophagoscopy and gastroscopy.

The meeting adjourned at 9:45 p.m.

LEWIS E. PHILLIPS, M.D., *Secretary*

YORK

The York County Medical Society held its bi-monthly meeting on October 13, 1971 at the York Hospital, York Village, Maine. It was an evening meeting with the program as follows: 6:30 to 7:30 p.m. – Social Hour; 7:30 p.m. – Dinner followed by the business meeting.

This meeting was presided over by Dr. Ruth Endicott of Ogunquit, President of the York County Medical Society.

The featured speaker was Mr. Frank Long, Portland, Maine Senior Claims Representative, Medicare, Union Mutual Life Insurance Company. His subject was "What the Physician Should

Know About Medicare" (fee scheduling, profiling, etc.). A very lively discussion followed this talk by Mr. Long.

Dr. Michael Festino of Saco, Maine was voted in as a member of the York County Medical Society.

The following motion was passed at this meeting:

The Medical Ethics Committee of our Society will notify all physicians that they should not be listed in a telephone directory of a locality where he does not have an office, residence, or hospital affiliation.

Another item of interest was a Thank You Letter from Mrs. June Ficker, President of the Ladies Auxiliary of the York County Medical Society, for a donation by the Society to help defray the expenses of the Auxiliary's participation at the Annual Meeting of the Maine Medical Association held at The Colony Hotel in June.

Dr. Endicott announced the Annual Meeting, which will be a combined meeting of the York County Medical Society and its Auxiliary, will be held at the Officers Club, U.S. Naval Shipyard, Kittery, Maine on January 12, 1972. The program will consist of a Social Hour from 6:30 to 7:30 p.m., Dinner at 7:30 p.m. and separate business meetings to follow. An outstanding speaker will participate. There will be an impersonator for entertainment and music for dancing.

The Nominating Committee of the York County Medical Society for the Annual Meeting was announced by Dr. Endicott. They are: Drs. Carl E. Richards, Kenneth E. Leigh and Melvin Bacon.

The scrapbook maintained by the Society was reviewed with complete approval by all the members present.

There were 17 physicians and 2 guests present.

The meeting adjourned at 9:55 p.m.

CHARLES W. KINGHORN, M.D., *Secretary*



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Carotid Artery Surgery in the Community Hospital

JOHN W. TOWNE, M.D.* and KARL E. SANZENBACHER, M.D.*

Arteriosclerosis is a disease that tends to be most severe at sites of arterial branching. One of the more common sites of predilection is at the carotid bifurcation. Its relationship there with stroke has been well known since Hunt linked athromatous narrowing of the internal carotid with cerebral malfunction in 1914.[1] It was not until 1954 when Eastcott, Pickering and Rob first undertook carotid artery surgery successfully that these lesions could be remedied and stroke prevented.[2] That timely carotid reconstructive surgery can prevent stroke, improve survival, and decrease morbidity, has been documented in several studies.[3,4]

The purpose of this paper is to review the experience with carotid artery surgery at Thayer Hospital during the past year. During this period of time, twenty-eight arterial reconstructive procedures have been performed on twenty-five patients. These patients ranged in age from 43 to 89 years with an average of 66. There were eight females and twenty males. With one exception, all patients were operated on for arteriosclerosis. The exception was a female with fibromuscular hyperplasia involving the internal carotid arteries.

The majority of the patients (15) presented with histories suggestive of multiple transient ischemic attacks consisting of episodes of dizziness, instability, blurring of vision or episodes of weakness (with or without hemiparesis), all being of a transient nature. Two additional patients had a history of one isolated attack of transient ischemia. Three patients underwent evaluation because of asymptomatic bruits heard over the carotid arteries found on routine examination or examination done for evaluation of other disease processes.

Two patients were admitted with a mild stroke which cleared or resolved after admission and then underwent evaluation. One patient was admitted with a moderate stroke consisting of right hemiparesis of one day's duration and slight aphasia. Another patient had had transient hemiparesis three weeks before admission, followed three days later by a stroke. The patient was evaluated because of worsening of his hemiparesis. The last patient was an 80-year-old man who had had a stroke one year prior to this admission and was being evaluated prior to undergoing other surgery.

Evaluation of these patients consisted of history and physical examination, the usual hemogram, SMA-12, urinalysis, chest x-ray, EKG and carotid arteriograms in all cases. Most patients had brain scans, EEG and ophthalmodynamometry. It was interesting to find in review of these patients that of the twenty-five patients in this series, only fifteen had bruits over the involved carotid arteries. Only one patient who had had a stroke also had a bruit. Three patients were felt on physical examination to have decreased pulsation at the carotid bifurcation. It was interesting that on arteriography the diminished pulsation was found to have been felt on the opposite or nonstenotic artery, and only once was the examiner correct when he said the pulse was diminished. Brain scans in most of the patients were within normal limits, but on two occasions showed decreased uptake on the side of the involved artery. On one of these patients, it demonstrated cerebral infarction and this patient was one admitted with frank hemiparesis. EEG was normal or equivocal in most patients and did not in general aid in the diagnosis of carotid insufficiency. The findings on arteriography, however, correlated well with the situation found at the time of surgery. Ophthalmodynamometry, when done on a cooperative patient, in the absence of cataracts, correlated very well with the degree of stenosis found at the carotid bifurcation at the time of surgery, and

*Departments of Surgery and Neurology, Thayer Hospital, Waterville, Maine 04901.

when done postoperatively, appeared to give good indication as to the improvement in cerebral blood flow obtained by the surgery.

Associated Diseases

This is a moderately elderly group of patients and the vast majority had other associated medical illnesses. All but three were reported to have generalized arteriosclerosis. One of these was hypertensive and one underwent surgery for fibromuscular hyperplasia, rather than arteriosclerosis. Of the twenty-five patients, thirteen were known to be hypertensive, seventeen had documented coronary artery disease with myocardial infarctions, angina pectoris, or congestive heart failure. Five of the twenty-five patients were known to be diabetic.

Type of Surgery

Twenty-five of the twenty-eight operations consisted of carotid endarterectomy. One patient who had elongation of his internal carotid artery and stenosis caused by a kink in that artery underwent resection of a portion of the artery with an end-to-end anastomosis. One patient underwent a combination of endarterectomy and resection of redundant internal carotid artery, and the last patient (with fibromuscular hyperplasia) underwent intraluminal dilatation of the extracranial length of her internal carotid artery, plus resection of redundant internal carotid.

The usual operation was done under general anesthesia without hypercarbia, hyperventilation or vasopressor drugs (unless patient was hypotensive). The skin incision was made along the anterior border of the sternocleidomastoid muscle, dissection carried deeply through the carotid sheath which was opened. In most instances, the ansa hypoglossi nerve had to be sacrificed. After the carotid sheath was opened, the region of the carotid bifurcation was infiltrated with 1% Xylocaine® to decrease carotid sinus reflex activity. The common carotid artery and proximal external and internal carotids were then dissected free from surrounding tissues. The superior thyroidal artery generally could be preserved. After vascular clamps were applied to these three vessels, the region of bifurcation was hydrostatically dilated with dilute Heparin Solution. The clamp was then removed from the internal carotid artery and if pulsatile back-bleeding was found, then no internal shunt was used during the endarterectomy. Longitudinal arterotomy was then made extending into the common carotid artery approximately 3 cm. and 2 cm. into the internal carotid. On occasion, longer arterotomy was necessary. Endarterectomy was then carried out; proximally the artheroma was trimmed off where it became thinnest, and no attempt was made to extend the endarterectomy down to the aortic arch or innominate artery. Distally, usually the atheromatous plaque tapered down to nothing. If, however, there was a long posterior plaque extending up to the skull, the plaque was trimmed off where it became densely adherent to the wall of the artery. The intima was not sutured down. Because of the absence of pulsatile backbleeding from the internal carotid artery, shunts were used on four occasions to bypass the area of endarterectomy during the time the artery was occluded. Number 10-12 French polyethylene catheters were employed and care was taken to keep the periods of total occlusion down to less than three minutes while putting in or taking out the shunt. Closure of the arterotomy was done over a #12 or #14 catheter used as a stent. Care was taken to flush and irrigate the vessels well before releasing clamps, and when clamps were released the first few seconds of flow were given to the external carotid to clear any debris that might have been missed before opening the internal carotid artery.

Results

Postoperative complications were minimal in this group of patients. There was one operative death and this occurred in a 66-year-old male who had severe coronary arteriosclerosis and was initially admitted to the hospital because of coronary insufficiency. After his cardiac status had stabilized, it was determined that he had not had an acute myocardial infarction. His transient ischemic episodes were evaluated and he was found to have unilateral carotid stenosis. This patient tolerated the procedure itself well and was stable throughout the operative period, but shortly after arrival in the Recovery Room he developed low out-put heart failure and succumbed despite intensive efforts. The cause of death was attributed to severe coronary artery insufficiency, perhaps triggered by a brief episode of hypoxia. At autopsy, he had severe generalized arteriosclerosis, severe coronary artery disease and the operated carotid was free of clot.

Two patients had worsening of their neurological status after surgery. One of these, a 74-year-old male, was admitted with frank right hemiparesis and slight aphasia. On arteriogram, he was found to have 80% stenosis of his right internal carotid artery at its origin and also to have a block of the distal left middle cerebral artery. Brain scan showed left cerebral infarct confirmed by EEG. During this patient's procedure, poor backflow was obtained in his internal carotid artery and a #14 French catheter shunt was used. Following surgery, this patient had worsening of his right hemiparesis.

The other was an 89-year-old female who had had syncopal episodes up to four times a day and was totally incapacitated because of cerebral ischemia. She also had severe coronary artery disease and a recent myocardial infarction. It was acknowledged that this patient was an extremely poor risk for any type of surgery, but since she had no discernible future without increased cerebral bloodflow, she underwent carotid endarterectomy with resection of redundant internal carotid artery over a #10 French polyethylene shunt. This patient had a fluctuating left hemiparesis, onset at six hours after surgery, and then stabilized with hemiparesis persistently after two days.

Two patients were found to have total occlusion of the internal carotid artery at the time of surgery and attempts

at regaining patency of the vessel were unsuccessful. These patients were unchanged postoperatively.

Of the remaining patients, one had partial left hypoglossal paresis felt to be secondary to retraction during the procedures. Two had some premature ventricular contractions during the first twenty-four hours following surgery, and one had an episode of angina the first night following surgery. All three of these latter patients had known coronary artery disease and none had any further problems. There were no wound infections in this series, nor were there any other complications.

In no case could a complication be attributed to the lack of a shunt during the procedure. Both patients who had increased cerebral dysfunction postoperatively had shunts used during their procedures. Both also had severe, diffuse arteriosclerotic involvement of intra and extracranial arteries.

The twenty-three operations in this series, performed in the groups of patients with transient ischemic attacks and asymptomatic bruits, were notable in that there were no major complications except for the one anesthetic death. It is hoped that we can prevent further similar occurrences with more sophisticated cardiac and direct arterial pressure monitoring during the procedure and immediate postoperative course. This type of monitoring should probably be routine in elderly patients undergoing any type of arterial reconstructive procedure because of the known high incidence of complications with arteriosclerosis. With such precautions, it is felt that these reconstructive procedures are extremely well tolerated by the patients and that the procedures do provide them with a much more hopeful future.

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Physical Therapy Career Film Available

Geriatric Pharmaceutical Corporation has made available prints of a 16 minute, 16 millimeter, color and sound film entitled "Decision." The film was prepared in cooperation with the Self Employment Group of APTA and selected pharmaceutical manufacturers, and was filmed at the University of California Department of Physical Medicine and Rehabilitation.

The film is tailored to students at the high school or early college level, and portrays the background and activities of the physical therapist. It follows the activity of the therapist through his professional training and practice, in the classroom, in the hospital, in the office and in the home. The film is strictly non-commercial, no products or devices are advertised or recommended.

"Decision" is of invaluable assistance to R.P.T.'s who are called upon by civic and other groups to talk about their work, since its comprehensive explanations cover virtually every facet of the profession. It can simplify and shorten the oral explanation by the R.P.T. and has been found to generate a lively "question and answer" period after its viewing.

The film is especially valuable for administrators and educators, for viewing by students who might be interested in pursuing a career in Physical Therapy.

Arrangements for booking on loan can be made by writing to Mr. Gustave Bardfeld, Director of Clinical Research, Geriatric Pharmaceutical Corporation, 397 Jericho Turnpike, Floral Park, N. Y. 11001.

Utilization Review: Its Costs, Its Problems, Its Solutions

Richard T. Chamberlin, M.D.*

Public Law 89-97 – "Medicare" – created a medical care program for its eligible beneficiaries and included within this program mechanisms designed to control its cost. One of these mechanisms called utilization review has become a significant problem for the fiscal intermediaries of the Medicare Program, hospitals, physicians, and the beneficiary patients.

Utilization review as defined in the Medicare legislation consists of two separate types of activity. The first is to review on a sample basis admissions, durations of stay, and professional services rendered. This review, usually termed retrospective review, is to help identify patterns of medical care and to promote the most efficient use of available health facilities and services. The second activity of utilization review is to study each case of continuous extended duration of stay while the patient is in the hospital. This has been called by some medical necessity determination and is designed to answer the following questions. Does the patient medically need to stay in the hospital longer? If so, why? Utilization review, therefore, has become one way to study part of the medical care system.

Analysis of the utilization review process and the results of utilization review activities have been of interest. In 1968, an analysis of the influence that utilization review had on the length of stay in the hospital was done at Massachusetts General Hospital.[1] This study showed that whereas in some cases length of stay was adjusted in response to the utilization review process, this adjustment occurred in only a small percentage of cases. More recently the experience with retrospective review of tonsillectomy and adenoidectomy in one hospital in Maine was reported.[2] The change in physician behavior as documented by the statistics gathered following the study was felt to be due to the utilization review process.

This report documents two often overlooked aspects of utilization review – the expenditure of time involved and the cost of the utilization review process. In addition, some opinions are expressed about the problems of studying the medical care system.

Description and Methods

Description of the Hospital – The Thayer Hospital is a community hospital of one hundred and sixty beds located in central Maine. It is owned and governed by a nonprofit voluntary type of corporate structure called The Thayer Hospital Associates. Policies are determined by an active Board of Trustees and implemented by a full-time hospital administrator and a medical director. The hospital offers a wide range of services including an out-patient department – The Mansfield Clinic, an emergency room, an intensive care unit and a coronary care unit. One section of a hospital floor is a licensed Extended Care Facility. The medical staff of fifty physicians includes a wide range of the medical specialties.

Description of the Area – The service area defined for Thayer Hospital has been studied carefully by the State of Maine Health Facilities Planning Council in its original Patient Origin Report[3] and by the hospital's consultant firm of Anthony J. J. Rourke, Inc.[4] Defining the exact area is difficult due to the differing referral patterns by service and by the fact that there are seven other hospitals within a twenty-five mile radius each with its own referral pattern within the same system. The annual report of Thayer Hospital for the year ending March 1971 documented that seventy-eight percent of the total admissions of 6,511 came from the immediate area encompassed in a circle with a twenty-five mile radius from the hospital. The 1970 population census in that area lists that area as having a population of 127,429.

Out of Hospital Services in the Area – There are a number of nursing homes scattered in the hospital service area and at the time of this report there were two other extended care facilities, one in Augusta twenty miles away, and another in Waterville. The area is also serviced by a certified Home Health Agency which provides home nursing and home physiotherapy.

Description of the Utilization Review Plan – The Utilization Review Plan of Thayer Hospital was originally written in 1966 and has been revised in 1966, 1969, and 1971. The definition of extended stay for the purposes of the plan is twelve and nineteen days. In other words, all the cases staying longer than twelve days are subject to their first review. If the case then stays longer than nineteen days, it is again reviewed at which time, depending on the nature of the case, the time for subsequent review is affixed to it. The latter procedure is followed then for each subsequent review as long as the case remains in the hospital. The records of the utilization review activity are maintained by the chairman and by the hospital record room, and a monthly report is made to the Executive Committee of the Medical Staff.

Description of Other Medical Staff Reviews – In accordance with the requirements of the Joint Commission of Hospital Accreditation, the Medical Staff carries on several other review functions.

(1) Monthly Surgical Audit Committee.
(2) Monthly Medical Record Committee.
(3) Monthly audit of death records.

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In addition, the Director of Medical Information employs the services of a medical record librarian consultant who conducts monthly reviews as directed by the medical staff and/or by the director of medical information.

Description of Study and Report – The records of the Utilization Review Committee from 1968, 1969, and 1970 were examined and the results tabulated in Table 1. Since many of the patients reviewed do stay longer than twelve or nineteen days, their records required review on more than one occasion. The records of the Utilization Review Committee show this and the comparison of the number of actual reviews done is listed in Table 2. The annual report of the Utilization Review Committee for 1969 is quoted showing an attempt to document the cost in time and money to complete the utilization review process for that year in Table 3.

Results

Table 1 shows the increasing numbers of records requiring review as defined above.

Table 1

Number of Patient Records Reviewed

Year	Acute Section	ECF	At Fiscal Intermediary Request	Total	Total Adm.	% Reviewed
1968	285	55	—	340	6492	5.2
1969	414	49	—	463	6511	7.1
1970	579	75	66	720	6494	11.2

Prior to 1970, no records were kept on the numbers of charts that were reviewed at the request of the fiscal intermediary. Some of these requests were simply for a discharge summary, but it was the feeling of the Utilization Review Committee that all of these requests and answers to them should be handled by the Utilization Review Committee since it was medical information that was requested. It is significant that using the method of review as defined above, over one-half of all the records of patients who were sixty-five years of age or over were reviewed by the Utilization Review Committee at least once.

Table 2 shows the relative number of times that a record may be reviewed.

Table 2

Number Of Charts Compared To Number Of Reviews

Year	Acute Section Charts	Acute Section Reviews	ECF Section Charts	ECF Section Reviews	Total Charts	Total Reviews
1969	414	546	49	52	463	598
1970	579	787	75	90	654	877

According to the Utilization Review Plan, even though a record may already have been reviewed, such as after the twelfth day of stay, that record must be reviewed again after the nineteenth day and even then again reviewed according to the type of case and the actual length of stay. This table shows the number of reviews done in relation to the total number of individual cases reviewed. Whereas the second and subsequent reviews may not take as much time as the original review, the actual time involved is variable with the case and with the reviewer involved. It is significant that in the first six months of 1971 the actual number of reviews already has reached 777.

In 1969, an attempt was made to document the cost of the utilization review process. The elements of the process are listed as follows and some of the cost elements are well documented, others are educated guesses based on the person's salary and the proportion of his time involved in the utilization review work.

Table 3

Person and Work Involved	Cost
(1) Medicare Coordinator's time keeping a tickler file to identify extended duration cases and obtaining recertification data and signatures	$ 373
(2) Record Room time involved in completing the routine data part of the Utilization Review Committee Check-List to be used in each case identified by the Medicare Coordinator	$ 500
(3) Two hundred and five documented physician man-hours involved at $25 an hour	$5,125
(4) Secretary's time involved in typing weekly notices to physicians and monthly reports	$1,000
Total	$6,998

Therefore, for a total of 598 acute and ECF reviews in 1969 the cost per review averaged $11.70. This does not include the costs incurred in the office of the fiscal intermediary in each case, a cost which is often duplicated several times in some difficult cases.

Discussion

The nature of the medical care system of the United States has been a subject of intensive study in recent years. The reasons for this interest are varied, but the increasingly high cost of medical care and some allegedly poor results as measured by the analysis of the outcome of medical care are among the main reasons given.

The focus of the present report is an analysis of the experience of one community hospital utilization review process from the aspect of expenditure of time and money to accomplish the process. Even though these costs are recoverable by the hospital as reasonable cost of administering the Medicare Program, these costs nevertheless exist and must be analyzed critically. Certainly they should be analyzed as critically as the cost of medical care itself – the latter costs being those which the utilization review process was expected to help control.

We have not been able to conduct the same careful analysis of the effect of utilization review on the length of stay factor as done at the Massachusetts General Hospital.[5] However, in our experience, gross data failed to show any improvement in length of stay as shown in Table 4.

TABLE 4

Year	Average Length of Stay Entire Hospital	Average Length of Stay Patients Over 65	Average Occupancy
1967	6.5 days	10.1 days	81.0%
1970	7.6 days	13.0 days	84.8%

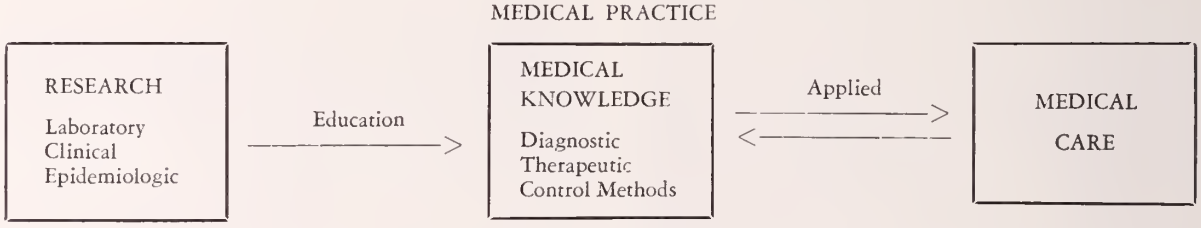
In 1967, the original Utilization Review Plan was in full effect, and although the plan was revised in 1969 the revision was designed to make the process more effective, if anything. It can be argued that the length of stay might have risen to an even greater extent had it not been for utilization review, but at least one cannot point to these data and claim that utilization review reduced the average length of stay. Another important point should be noted in this regard. There are many factors operating to influence a patient's length of stay other than utilization review, and any study hoping to show what possible effect utilization review may have on stay must take all factors into account.

Dr. Lawrence Weed has very clearly isolated a major contributing factor to the problems with utilization review. In his article, "Quality Control and the Medical Record,"[6] he states that, "There is no point in developing an audit unless the physician under scrutiny knows what will be expected of him and how he might achieve it." Utilization review represents one form of auditing of medical practice. Although the American Medical Association endorsed and recommended the study of proper utilization of hospital facilities as early as 1960, most physicians never understood the definitions of "covered care" as defined by the Medicare legislation. Thus, they did not know what was expected of them. The cost control aspects of Utilization Review have not been equated with an audit of good medical care in the physician's mind. To compound this aspect of the problem, our patients in general do not understand the limitations of their Medicare Insurance contract. The Social Security Administration has been totally ineffective in attempting to explain these to the public in publishing articles in newspapers with such phrases as " – covered in-patient care is that which ordinarily requires the continuous attention of skilled medical personnel."

All of this difficulty has also been compounded by the apparently grossly inadequate financial data provided to our legislators in Congress, data which were used to estimate costs of good comprehensive medical care. The low estimate of this cost at the legislative level when the Medicare Act was being formulated served to make the actual increase in cost caused by the inflation in our economy seem even more astronomical. Faced with this, the Social Security Administration has tried to use the utilization review process as one of the only mechanisms open to them to save their financial faces.

Notwithstanding, the medical profession has accepted the principle of an audit of medical practice for some time and literature on the subject has been appearing since Ponton's article in 1928.[7] It is likely that physicians do vary in their degree of acceptance of an audit of their work. However, the formation of the Joint Commission of Hospital Accreditation and its number of medical sponsoring bodies plus the fact that most physicians prefer to practice in hospitals which have Joint Commission approval bespeaks the physician's basic belief in the principles upon which the commission was founded – audit being the cornerstone.

If this be so, where do we go from here? One might begin by considering again what is the nature of the process we are attempting to study. It would seem that the actual focus should be on those elements actually existing in what is called medical practice – or in other words, the practice of medicine. Virgil Slee, M.D., Director of the Commission on Professional Hospital Activities in Ann Arbor, Michigan, defined certain elements of medical practice.[8]



The first element of medical practice is a large body of scientific fact and theory which is developed as a result of research both in the scientific research laboratories as well as clinical research in practice. These facts, precepts and theories are taught to the medical student and become the basis of medical knowledge that the young physician gains progressively in his educational process. This knowledge represents the second element in medical practice. Finally the physician applies this knowledge in the process of caring for his individual patients in his own medical practice. The degree to which a physician applies this knowledge in the case of his patient is felt to represent the degree that he practices acceptable or unacceptable medicine in the eyes of his peers.

The study of medical practice becomes a complex subject when one realizes the many variables involved in the elements in the above model. One can, of course, devise tests of a physician's knowledge of basic facts and the many self-assessment testing programs available today are evidence of attempts to do this. All who partici-

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The Application of Serum Digoxin Levels in Clinical Practice

Anthony Betts, M.D.*

During the last two years, it has been possible to offer a rapid method of measuring serum digoxin levels. By this new and accurate laboratory test, it was anticipated that the empirical clinical approach to digitalizing the patient might be eliminated.

As is well known, the major problem in digoxin therapy is the prevention of symptoms and signs of toxicity. These may be particularly difficult to interpret in the field of conduction and arrhythmias;[1] while determining the etiology of concomitant nausea and vomiting can be equally puzzling. Interestingly enough, it has been stated that over-digitalization is more often the result of renal dysfunction than the excessive administration of the drug.[2] Other factors such as old age and hyperthyroidism can lead to a rapid manifestation of toxicity. On the other side of the coin is the question of whether a patient is sufficiently digitalized. This may be either from malabsorption of the drug, a particular idiosyncrasy to the normal level of the drug, or a suspicion that the patient is not following directions in taking it.

With this as background, in our laboratory we proceeded to establish a method to measure digoxin by in vitro radio-immune assay.[3] This system is based on the theory that digoxin competes for binding sites with a constant amount of radioactive digoxin labeled with either I-125 or H-3 to an antibody to digoxin. The more sites on the antibody used by the patient's serum digoxin the less room there is for the radioactive labeled digoxin. The excess radioactive digoxin is then absorbed onto Dextran® charcoal and the supernatant containing the antibody with the remaining radio-bound digoxin is counted. Thus, the smaller the amount of radio-activity the higher the serum digoxin level. This test requires about one and one-half hours to perform and it may be undertaken by any technician with average skills. If more than ten tests were run per month, a reasonable fee for such a procedure would be $10.00 or less.

The materials used in our laboratory were supplied in a kit form and the digoxin was labeled with I-125 so that a conventional well counter such as that used in any laboratory for doing T-3's and T-4's, etc. could be used. During the initial phases, many serum determinations were made on all patients on digoxin therapy. These results were correlated with other clinical laboratory data, in particular serum potassium, electrocardiogram and also with the clinician's own interpretation of the patient's level of digitalization. It was found that patients appeared to be adequately digitalized with serum levels of between 1-2 mcg./100 ml. Levels over 2 mcg./100 ml. were found in patients who were suspected of having digoxin toxicity. In this initial work and in the clinical experience that followed, all levels over 2 mcg. were shown to be in toxic patients.

The availability of this test in our laboratory was greeted with marked enthusiasm. To date, however, over a period of six months, we have performed some twenty estimations. All have correlated well in diagnosis and in following up in the prediction of toxicity. Yet, this is a disappointing work load when one considers the number of patients who must be receiving digoxin in the total community; and one is disposed to ponder why.

For example, the question has been raised as to whether the serum level of digoxin really reflects the tissue concentration of the heart. Doherty[4] gave figures in a series of patients showing that the ratio serum to cardiac digoxin was from 17-1 to 35-1 with a mean of 29-1. He also noted that 80% of digoxin is excreted in the urine and the biological half life is 41 hours in a normal patient. In a large series of digitalized patients, it has been shown that 80% who had levels greater than 2 mcg./100 ml. were showing signs of toxicity. The remaining 20% had patients who exhibited levels as high as 4 mcg./100 ml. without apparent ill effect. Most literature quotes experience where the digoxin levels have proved to be reliable[5] and clinically useful. A notable exception has reported to the contrary.[6]

Clinically it would seem that the experienced physician and cardiologist still places most confidence in time proven bedside diagnosis of toxicity correlated by electrocardiographic tracings and serum potassium levels. And for the suspected under-digitalized patient, the refractory failure, tachycardia, digitalis loading to the level of recognized toxicity seemed to be a prevailing method, yet not without some hazard.

The era of determining therapeutic levels of various medications may be at hand just as one saw the dawn of serum electrolytes two decades ago. In those days, one could have a very shrewd guess at the serum sodium by gazing long and hard from the foot of the bed or even by doing a urine chloride. Perhaps in time serum digoxin, along with such things as serum dilantin, insulin, antibiotics will become more commonplace, but at the present time there has been a slow, not to say discouraging, start.

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Quality Care — A Cooperative Effort

Beverly M. Johnson, R.N., B.S.* and Shirley R. Bastien, R.N., B.A.**

It is an established fact that the primary goal of all members of the health care team is to provide quality patient care. If this is true, should not the auditing of and the on-going education for this care be a cooperative effort? We think so. An example of this cooperative effort has recently been demonstrated at Thayer Hospital. In late 1970, dual studies were performed to measure the relative quality of the care and service provided our patients. The concept of nursing audit is not new at this hospital. An audit procedure patterned after the medical audit was instituted here in the early 1950's. In re-instituting the audit, a somewhat different approach was taken. With the guidance of consultative services, items indicative of quality nursing care were prepared to reflect the standards of nursing established for our hospital. These indicators were developed by a committee of nursing personnel with suggestions from Patient Care Committee Members and the medical staff. Random observations by members of the Nursing Audit Committee of a sample of patients and their environment, charts, and the nursing units reflected an index of quality of care for all patients, charts, and units. The five general areas surveyed were patient welfare and safety, patient comfort and accessibility of immediate needs, patient room, patient charts, and nursing units. Some examples of items under each one of these categories are as follows:

A. Patient Welfare and Safety
 1. Patient does not appear to require immediate attention.
 2. Nurse performing procedure correctly and efficiently.
 3. Patient prepared emotionally for diagnostic tests in last 48 hours.

B. Patient Comfort and Accessibility of Immediate Needs
 1. Patient appears to be as comfortable as possible.
 2. Bedside table and personal effects within easy reach.

C. Patient Room
 1. Bedside table clean, drawers stocked.
 2. Are personnel being discreet in conversation and in presence of patient?

D. Patient Charts
 1. Do activities of daily living as documented on plan of care on Kardex correspond with activities of daily living charted in nurse's notes?
 2. Are all medications charted with time, method, dose and signature of nurse?
 3. Do the nurses' notes contain evidence that the nurse is preventing deterioration of patient's physical state through nursing measures, observation, reporting and teaching?
 4. Can nurse relate working diagnosis of physician to current findings (lab., x-ray, etc.); nursing observations; procedures?

E. Patient Kardex
 1. Is there a discharge plan or evidence of planning for discharge?
 2. Is nurse aware of pharmacologic and side effects of medications?

F. Nursing Units
 1. Are emergency and special unit trays accessible and complete, including oxygen?
 2. Does crash or mini-cart equipment work properly and do sterile supplies and medications have current dates?
 3. Are fire rules, disaster plan and code 99 procedures available?

The second phase of the survey was designed to provide a guide for determining the daily nurse staffing requirements and an objective analysis of nursing activities. This information provided a method for increasing the effective and efficient utilization of nursing personnel. Previous studies in other hospitals indicated that up to 25% of Head Nurse and Supervisor time was being spent on non-clinical, non-nursing management duties. We, at Thayer, found the situation not much different. Phase II results disclosed that 20-40% of nursing time was being used for non-clinical activities. These tasks which did not require the clinical expertise of a professional nurse were identified and it was felt that they might be successfully reassigned to a non-nursing person. It seemed appropriate to consider other alternatives so that nurses could devote more of their time to the care of the patient. Nurses have long been expressing a desire to return to nursing. We have added more and more administrative tasks to the role of the nurse in addition to giving her more people to supervise and requiring that she perform in highly specialized clinical fields. This has created an impossible situation with serious frustrations for the conscientious practitioner of nursing. Dissatisfaction has also been expressed among medical staffs, administration and the general public. One solution to this dilemma that others have been testing is the use of Unit Managers. This program is now being instituted in many hospitals under various organizational structures. It seemed appropriate to explore the Unit Manager System at Thayer with the Managers reporting to administration. If the Unit Managers could

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(*Typical clues—shorter, plumper, full-breasted, with glowing skin and no wrinkles. Vaginal cytology slide "pink.")

Some women with special conditions that may be aggravated by higher estrogen-activity products may do better on this ratio.

Demulen combines minimal estrogenic activity with a moderate ratio of progestogen overbalance. It is particularly well suited to the young when low-dose (activity) is preferred. Demulen offers little risk of the most potent progestogen side effects; early breakthrough bleeding is often transient.

Demulen®

Each white tablet contains. ethynodiol diacetate 1 mg./ethinyl estradiol 50 mcg
Each pink tablet in Ovulen-28® and Demulen®-28 is a placebo, containing no active ingredients.
Both Ovulen and Demulen are available in 21- and 28-pill schedules.

the Enovid-E phase

Some women* who secrete **less estrogen** than mo do best on a pill with a moderate estrogen overbalance.

(*Typical clues—oily complexion, acne, hirsutisr masculinity, flat chest. Vaginal cytology slide— "blue.")

Patients with estrogen deficiency may show:

premenopausal syndrome
early-cycle bleeding
scanty menses
intermittent depressic
increased appetite
steady weight gain
vaginal candidiasis

Enovid-E not only provides increased estrogeni activity with low progestogen activity, but also contains the only progestogen that is not antiestrogenic. Therefore it offers less risk of high-dose progestogen side effects.

Enovid-E®

Each tablet contains. norethynodrel 2.5 mg /mestranol 0.1 mg

Oral contraceptives are complex medications and, after reference to the prescribing information, should be prescribed with discriminating care.

for the 3 phases of Eve:

a family of O.C. products

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Each pink tablet in Ovulen-28® and Demulen®-28 is a placebo, containing no active ingredients.

Actions—Ovulen and Demulen act to prevent ovulation by inhibiting the output of gonadotropins from the pituitary gland. Ovulen and Demulen depress the output of both the follicle-stimulating hormone (FSH) and the luteinizing hormone (LH).

Special note—Oral contraceptives have been marketed in the United States since 1960. Reported pregnancy rates vary from product to product. The effectiveness of the sequential products appears to be somewhat lower than that of the combination products. Both types provide almost completely effective contraception.

An increased risk of thromboembolic disease associated with the use of hormonal contraceptives has now been shown in studies conducted in both Great Britain and the United States. Other risks, such as those of elevated blood pressure, liver disease and reduced tolerance to carbohydrates, have not been quantitated with precision.

Long-term administration of both natural and synthetic estrogens in subprimate animal species in multiples of the human dose increases the frequency of some animal carcinomas. These data cannot be transposed directly to man. The possible carcinogenicity due to the estrogens can be neither affirmed nor refuted at this time. Close clinical surveillance of all women taking oral contraceptives must be continued.

Indication—Ovulen and Demulen are indicated for oral contraception.

Contraindications—Patients with thrombophlebitis, thromboembolic disorders, cerebral apoplexy or a past history of these conditions, markedly impaired liver function, known or suspected carcinoma of the breast, known or suspected estrogen-dependent neoplasia and undiagnosed abnormal genital bleeding.

Warnings—The physician should be alert to the earliest manifestations of thrombotic disorders (thrombophlebitis, cerebrovascular disorders, pulmonary embolism and retinal thrombosis). Should any of these occur or be suspected the drug should be discontinued immediately.

Retrospective studies of morbidity and mortality conducted in Great Britain and studies of morbidity in the United States have shown a statistically significant association between thrombophlebitis, pulmonary embolism, and cerebral thrombosis and embolism and the use of oral contraceptives. There have been three principal studies in Britain[1-3] leading to this conclusion, and one[4] in this country. The estimate of the relative risk of thromboembolism in the study by Vessey and Doll[3] was about sevenfold, while Sartwell and associates[4] in the United States found a relative risk of 4.4, meaning that the users are several times as likely to undergo thromboembolic disease without evident cause as nonusers. The American study also indicated that the risk did not persist after discontinuation of administration and that it was not enhanced by long-continued administration. The American study was not designed to evaluate a difference between products. However, the study suggested that there might be an increased risk of thromboembolic disease in users of sequential products. This risk cannot be quantitated, and further studies to confirm this finding are desirable.

Discontinue medication pending examination if there is sudden partial or complete loss of vision, or if there is a sudden onset of proptosis, diplopia or migraine. If examination reveals papilledema or retinal vascular lesions medication should be withdrawn.

Since the safety of Ovulen and Demulen in pregnancy has not been demonstrated, it is recommended that for any patient who has missed two consecutive periods pregnancy should be ruled out before continuing the contraceptive regimen. If the patient has not adhered to the prescribed schedule the possibility of pregnancy should be considered at the time of the first missed period.

A small fraction of the hormonal agents in oral contraceptives has been identified in the milk of mothers receiving these drugs. The long-range effect to the nursing infant cannot be determined at this time.

Precautions—The pretreatment and periodic physical examinations should include special reference to the breasts and pelvic organs, including a Papanicolaou smear since estrogens have been known to produce tumors, some of them malignant, in five species of subprimate animals. Endocrine and possibly liver function tests may be affected by treatment with Ovulen or Demulen. Therefore, if such tests are abnormal in a patient taking Ovulen or Demulen, it is recommended that they be repeated after the drug has been withdrawn for two months. Under the influence of progestogen-estrogen preparations preexisting uterine fibromyomas may increase in size. Because these agents may cause some degree of fluid retention, conditions which might be influenced by this factor, such as epilepsy, migraine, asthma, cardiac or renal dysfunction, require careful observation. In breakthrough bleeding, and in all cases of irregular bleeding per vaginam, nonfunctional causes should be borne in mind. In undiagnosed bleeding per vaginam adequate diagnostic measures are indicated. Patients with a history of psychic depression should be carefully observed and the drug discontinued if the depression recurs to a serious degree. Any possible influence of prolonged Ovulen or Demulen therapy on pituitary, ovarian, adrenal, hepatic or uterine function awaits further study. A decrease in glucose tolerance has been observed in a significant percentage of patients on oral contraceptives. The mechanism of this decrease is obscure. For this reason, diabetic patients should be carefully observed while receiving Ovulen or Demulen therapy. The age of the patient constitutes no absolute limiting factor, although treatment with Ovulen or Demulen may mask the onset of the climacteric. The pathologist should be advised of Ovulen or Demulen therapy when relevant specimens are submitted. Susceptible women may experience an increase in blood pressure following administration of contraceptive steroids.

Adverse reactions observed in patients receiving oral contraceptives—A statistically significant association has been demonstrated between use of oral contraceptives and the following serious adverse reactions: thrombophlebitis, pulmonary embolism and cerebral thrombosis.

Although available evidence is suggestive of an association, such a relationship has been neither confirmed nor refuted for the following serious adverse reactions: neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis.

The following adverse reactions are known to occur in patients receiving oral contraceptives: nausea, vomiting, gastrointestinal symptoms (such as abdominal cramps and bloating), breakthrough bleeding, spotting, change in menstrual flow, amenorrhea during and after treatment, edema, chloasma or melasma, breast changes (tenderness, enlargement and secretion), change in weight (increase or decrease), changes in cervical erosion and cervical secretions, suppression of lactation when given immediately post partum, cholestatic jaundice, migraine, rash (allergic), rise in blood pressure in susceptible individuals and mental depression.

Although the following adverse reactions have been reported in users of oral contraceptives, an association has been neither confirmed nor refuted: anovulation post treatment, premenstrual-like syndrome, changes in libido, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, fatigue, backache, hirsutism, loss of scalp hair, erythema multiforme, erythema nodosum, hemorrhagic eruption and itching.

The following laboratory results may be altered by the use of oral contraceptives: hepatic function: increased sulfobromophthalein retention and other tests; coagulation tests: increase in prothrombin, Factors VII, VIII, IX and X, thyroid function: increase in PBI and butanol extractable protein bound iodine, and decrease in T^3 uptake values; metyrapone test and pregnanediol determination.

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Indication—Enovid-E is indicated for oral contraception.

The *Special Note, Contraindications, Warnings, Precautions* and *Adverse Reactions* listed above for Ovulen and Demulen are applicable to Enovid-E and should be observed when prescribing Enovid-E.

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Where "The Pill" Began

have the responsibility for the initiation, coordination and communication of all non-nursing administrative functions on the nursing units, the nurse should then be free to carry out her professional functions at the bedside.

In June of 1971, a Development and Evaluation Committee was created with representation from medical staff, administration and nursing service. The charge to the committee was to define the responsibilities of all those involved and to plan for the full implementation of the program. Based on the experiences documented in other institutions, even though nurses had expressed a desire to return to the bedside to give the type of clinical care that they were educated to give, some apprehension and reluctance to change from their current role had been shown. In order to make this transition as successful and effective as possible, a sub-committee for nursing education was formed. This group consisted of a physician, the Director of Nursing Services, a Head Nurse from one of the two designated pilot units, and the Coordinator of Inservice Education. It was of the utmost importance for the nurse to be involved in implementing the change and to have a complete understanding of her role. An educational program was then developed with a two-fold purpose. First, to develop leadership skills to better understand the role of the professional nurse today; and secondly, to promote a higher degree of clinical expertise. Cooperative effort between doctors and nurses went into the planning of the course content. Eleven registered nurses from Thayer completed this Advanced Clinical Nursing Program. The program was held two days each week for eight weeks for a total of ninety-six hours. Through lectures, discussions and demonstrations, various aspects of medical-surgical nursing were pursued and updated. Forty different health care members contributed to the success of this program including physicians, nurses, administrative staff and para-medical specialists representing a team effort approach. Lectures were given on the changes in medical-surgical nursing and new approaches to patient care. Discussions and demonstrations aided the nurse in improving her skills as an observer and reporter. Several sessions were held to help develop an appreciation of basic human relations and to gain insight into the emotional, social and psychological needs of the patient. Most gratifying was the attitude of cooperation and enthusiasm on the part of the participants. Their written evaluations reflected a satisfaction in the content of the program. They expressed an intention to utilize those skills obtained through attendance in the program for improving the quality of patient care. If the professional nurse is to return to the bedside, she must feel comfortable and confident in her clinical situation.

To evaluate and assess the effectiveness of these programs, the nursing audit continues to be used as one method of measuring the quality of care. A control nursing unit without a Unit Manager will be measured in the same manner as one of the pilot units with Unit Management to compare the effect on patient care with different patterns of utilization of nursing personnel. In addition, the influence of the Advanced Medical-Surgical Nursing Training Program on quality should be demonstrable.

If quality patient care is our stated objective, then joint educational and auditing efforts must be pursued in conjunction with continued cooperative planning, implementing and evaluating new and on-going programs.

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The Role of the Health Sciences Library in the Community Hospital

Maida G. Eisenberg* and Mrs. Irving Goodof**

Last year, the name of the library at Thayer Hospital was changed from the "Hodgkins Medical Staff Library" to the "Hodgkins Health Sciences Library," replacing a term which implied the exclusion of all but physicians and materials of interest to them with one which invites all readers and connotes a wider range of materials. This titular change reflects a new role, not only for Thayer Hospital's library, but for medical libraries across the nation. For many years, tradition had cast the hospital medical library into the narrow role of a professional library for medical staff. But recently, three phenomena have forced it to widen its scope. The first is the mushrooming demand for professional information from a wide range of staff including physicians, nurses, para-medicals, and those performing non-clinical tasks associated with patient care and the operation of a hospital. Second, is the unanimous conviction that patients should be treated as people as well as clinical cases. And third, is the recognition among health care professionals that community health education contributes substantially to community health. This article describes how both the resources and services of the Hodgkins Library attempt to respond to these pressures.

The library's resources represent most activities directly or indirectly related to patient care and the operation of a hospital, and are available to all staff members, patients and members of the community who have a legitimate need for them. The 5,000 texts, over 130 journals, cassette tapes and vertical files it houses are chosen from suggestions made by staff from all departments.

To supplement the materials within its own walls, the library has integrated the many private professional libraries scattered throughout the hospital, doctors' offices and homes into the central catalogue system in the library, alerting readers to their availability. For example, books and journals in the laboratory appear in the catalog with a notation that they are shelved in the laboratory and can be read there. Through this "union catalog system," the resources to which readers have immediate access are increased, and the library avoids duplication of materials already available.

Even with the addition of a union catalog, however, the library is still somewhat limited. But its participation in the Regional Medical Library System eliminates this deficiency and makes virtually boundless the current and pertinent information available to it. The system is an arrangement of medical libraries in a geographical region such as New England into a hierarchy of increasingly better equipped libraries. The apex of the hierarchy is the National Library of Medicine, the largest medical library facility in the nation. As a member of this system, our library can tap the vast resources of the Maine Medical Center in Portland, which in turn has access to the Countway Library in Boston and the National Library of Medicine. The 1,500 requests made to various members of the system on behalf of the Thayer staff members and community readers last year demonstrates its value as a retrieval tool to a small community hospital.

But to provide comprehensive resources to its readers, the library must often venture beyond its own perimeters and even those of the Regional Medical Library System into the community. For often, readers require information which, although itself neither medical nor hospital-oriented, relates directly to patient care or hospital operation. For example, to effectively treat a factory worker's lung ailment, a physician might need to know the names and nature of the chemicals released in a particular industrial process. To retrieve such information, the library relies on another network of information repositories: the public, private and school libraries, health agencies, legal organizations, and well-informed individuals that pervade the community. But unlike the Regional Medical Library System, the community resources are not restricted to libraries with the same specialty and offers a great variety of information. Nor is it organized into a formal working system; it simply exists and must be sought out if it is to be used.

Thus, the library has organized its resources to help meet the demands from both within and without the hospital by varying the scope of its own materials and utilizing the resources of other organizations. The services offered by the library are designed to support and enhance this organization of its resources. For example, there are several services intended to make the material available to staff more accessible. Because in a hospital emergencies and tight schedules make leisure a rare commodity, the library remains open twenty-four hours a day. Thus, any time an unexpected lull gives staff members a chance to read or an emergency creates an immediate demand for information, the library can be used. Further, this schedule provides the day, evening, and night shifts equal access to the library.

Further, a librarian staffs the library from 8 a.m. to 4:30 p.m. on weekdays to provide services to the staff. One of her duties is to locate and retrieve information of professional interest to any staff member who requests

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it. In cases where the information is urgent, this service saves the staff the time and effort they would have to make to find it themselves. But the researching service is also intended to allow staff to follow up their more casual professional interests. For without it, if they were interested in information but it were not particularly urgent, their hectic schedules would not afford them the time to do research and these interests would go unpursued.

In addition to filling research requests initiated by staff, the librarian maintains a file of the topics of professional interest to each staff member. With these lists in mind, the librarian peruses all materials passing across her desk. When materials relevant to their interests appear, particularly in journals that they would not encounter in the normal course of professional reading, she alerts appropriate staff members. For example, it would not be unusual for information of interest to a Dermatologist to be couched in a journal of Internal Medicine within an article on the skin manifestations of a systemic disease. If he subscribed only to Dermatology publications, he might never see the article.

Further, the library participates in the formal process of inservice education in the hospital by gathering bibliographies for instructors, retrieving the items on them, and arranging to display them in either the library or the site of the course, so that they can be read on the premises or borrowed.

Services are aimed at the health consumer as well as the staff. This availability is in direct response to the philosophy that the medical treatment of a patient must include consideration of him as a person as well as a set of symptoms, a philosophy which has been voiced almost unanimously by health professionals and patients alike, and which has spawned the recent advent of ethnic meals, meal choices, and personnel who provide a liaison between patient and institution.

In this spirit, Thayer Hospital's library, like so many others across the country, has extended its services to include a patient library to help alleviate the tedium patients face in a hospital day. Under the aegis of the interlibrary loan system, the library borrowed books, magazines and records from the Waterville High School Library Media Center. These were circulated once a week on a cart by the librarian. Patients were alerted to the service by an explanatory brochure that was placed on their breakfast trays the morning the cart was to circulate. During the eight weeks of July and August that the experimental library operated, many patients took advantage of it, and their doctors and nurses both agreed that the library materials offered a therapeutic hiatus for the patients.

The summer experiment was modified and established as a permanent hospital service. Books are now borrowed from the public library, and the magazines are donated through employees. Since the librarian's primary commitment is to staff, the time-consuming responsibility for obtaining and circulating materials has been turned over to student volunteers from the local schools as well as members of the Ladies' Auxiliary and the community at large. The librarian is involved only to the extent that she uses her interlibrary loan perogative to obtain materials and in an advisory capacity when necessary. The cart is now circulated three times a week, enhancing its availability to patients. The need for such a service to patients seems to be borne out by the fact that in the past several months the percentage of patients using the library continues to rise.

In addition to providing leisure reading for patients, the library supplies, upon occasion, patients with medical information. In the judgement of the physician, some patients and their families would adjust more readily to the illness that has suddenly invaded their lives if they received more information on the condition and its treatment than most patients are usually given. In such cases, a guided program of reading is carefully chosen by the physician from the library's resources for the patient and those close to him.

The lay demand for health information comes not only from patients and their families, but from the general community as well. In fact, almost one-third of the library's readers have no professional association with either the hospital industry or patient care, but do have occasional need for health sciences data. This burgeoning public interest in health information is encouraged by a growing belief among health care professionals that if health is to prevail in the community, community medical education must take place to insure it. Therefore, in the absence of a medical school with a library for the public sector in the Waterville area to draw upon, the Hodgkins Library makes its resources and services available to the public whenever possible.

Many of the people using the library are students and educators referred from other non-medical libraries in the area such as the Waterville Public Library, the Colby and Thomas College Libraries, the University of Maine Library, and the impressive facility at Waterville High School. Although these libraries are well-equipped to serve their readers in most cases, they cannot meet the requests for specialized health sciences data that periodically occur. For example, a Biology teacher seeking to enrich a curriculum on drugs might not have sufficient access to objective medical data on the physiological and psychological consequences of using LSD and Speed through a school library. Nor could an educator who discovers that a student has a debilitating condition get the information which would help him tailor the classroom situation to provide optimum learning conditions for that student from the school or public library. Similarly, a student working on an individualized research project on the etiology of stroke would have to rely on resources of a health sciences library for the information he needed. Further, no school or public library could offer the informal vocational guidance to those contemplating a career in the health industry that a health sciences library can. For, just the chance to explore the literature and research processes encountered in a particular health profession

can be a telling experience which might help in making a more informed and realistic career choice.

Another large component of the lay readers serviced by the library are the individuals whose professional roles as lawyers, social workers, policemen, city officials, and others occasionally require a health sciences library. For example, a city official seeking the passage of pollution controls might need authoritative medical proof that the chemicals released in an industrial process used locally are pathogenic. Similarly, a physical director at a community athletic facility might need up-to-date information on the medical relationship between certain kinds of exercise and the incidence of heart disease.

The recent increasing demands for professional information from the staff, treatment of patients as people, and health education for the community have forced the Hodgkins Memorial Library at Thayer Hospital to view itself in a newer and broader perspective. In keeping with its new role, it has extended its resources and services to the entire staff and community, and at the same time, has repeatedly called upon these same people to help supplement its own resources.

UTILIZATION REVIEW: ITS COSTS, ITS PROBLEMS, ITS SOLUTIONS

Continued from Page 24

pate in these testing programs recognize their limitations when coming to the question of how a given physician will treat a given patient at any given time. This is to say nothing about the very real variable of, when in the continuum of health – disease – death or recovery, the patient, himself, perceives a need to consult the physician.

The latter considerations together with such variables as the unknowns of the natural history of disease, the variables in the diagnostic process, the scientifically honest differences of opinion about treatment are all beautifully covered in a recent report by Katharine O. Elsom, M.D.[9] It is unlikely that federal legislation will ever be effective in imposing a review process on the medical profession unless it is flexible enough to allow for the variables detailed in Dr. Elsom's article.

It seems quite clear that we do not have a good background of data which measures the medical care system in terms described by Slee and Elsom. We do, however, have a mechanism available to the profession to begin the long process of such a study and documentation of medical practice – and in fact the medical care system as a whole. That mechanism is the problem oriented method of clinical practice developed by Dr. Lawrence Weed.[10] Using this method in clinical practice and studying the data recorded in the process will help define all elements of the medical care system in a far more concrete way. It is only then that we will come close to being able to answer the question – Can we afford the cost?

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THE APPLICATION OF SERUM DIGOXIN LEVELS IN CLINICAL PRACTICE

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Usage in Pregnancy: In pregnancy, nursing mothers and women who might bear children, weigh potential benefits against hazards. Inhibition of lactation may occur.

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Foundations for Medical Care

The following is a summary of Carolynn Steinwald's "Blue Cross Report" on Foundations for Medical Care. The complete report can be had by writing Physicians' Claims Department, Associated Hospital Service of Maine, 509 Forest Avenue, Portland, Maine 04101.

In the current spate of literature dealing with the delivery and financing of health care, a great deal of space has been given to discussing Foundations for Medical Care. Nonetheless, Foundations remain one of the least understood of the current alternative health care systems, principally because the concept is so broad as to embrace a number of rather different types of organization.

All Foundations share three broad basic assumptions: (1) that physicians must retain responsibility and leadership in the design and delivery of medical services, (2) that care must be provided at a just and equitable cost, and (3) that peer review must be encouraged as a mechanism to insure quality care and control the rise of medical costs.

Beyond these generalizations, however, Foundations have assumed a wide range of forms. So far these tend to cluster around three basic models.

The California Model

There are now 22 Foundations in California, 18 of them in full operation. Each of them is sponsored by one or more county medical societies.

California Foundations have assumed two primary tasks: (1) the design and sponsorship of health insurance programs in which participating physicians are reimbursed on a fee-for-service basis and (2) the establishment of local peer review committees to monitor the type, quality, and fees of physician services.

To accomplish the first of these tasks, each Foundation has established a Minimum Standards Committee to spell out the benefits which member physicians feel are crucial to the delivery of quality medical care. Typically, these include consultation services in or out of the hospital, some lab, x-ray, and surgical procedures in or out of the hospital, and dependent coverage from birth. Foundations will not contract with carriers which do not provide recommended minimum benefits in their Foundation insurance programs.

The peer review function is carried out at the local level and prior to reimbursement. Most California Foundations actually process claims. Each Foundation appoints a Quality and Cost Review Committee to develop criteria of care and a Reimbursement Committee to set ceilings on charges. Clerical reviewers screen out those claims requiring peer review — either for quality and appropriateness of care or for reasonableness of charges. Fifteen to twenty percent of all claims are referred to a reviewing physician, who typically is compensated at the rate of $25 to $35 an hour. The reviewing physician refers one to two percent of all claims to the full Peer Review Committee, which meets monthly.

Carriers continue to set and collect premiums and to market and underwrite programs (though it must be noted here that some California Foundations have also marketed their own program in competition with other carriers.) For processing and reviewing claims, the Foundations receive 2½ to 5% of the premiums.

The Minnesota Model

The Foundation for Health Care Evaluation in Hennepin County, Minnesota has been operational since May of 1971. It differs from the California model in three respects: (1) the Foundation's philosophy regarding minimum standards of health insurance, (2) Foundation relationships with carriers, and (3) the organization of the peer review function.

1. The Foundation for Health Care Evaluation seeks to encourage the cooperation of all third-party financing agencies, the less adequate as well as those with more comprehensive coverages. In order to "avoid the difficulties encountered by other Foundations which have designated insurance plans that are more comprehensive than the public or industry is willing to pay for," the Hennepin County group recommends rather than requires minimum standards of coverage.

2. The Foundation for Health Care Evaluation does not process claims for third-party carriers. "It would be presumptuous," they say, "for Foundations to think that they could do a better job administering claims than the insurance companies who have been trained and experienced in the area for years."

Instead, the Foundation provides carriers with a "book of norms" of quality and appropriateness of care and with guidelines for determining usual and customary fees. Only those claims which fall outside the norms or guidelines are sent to the Foundation office for peer review.

3. Those claims referred for review are first seen by a reviewing physician. He presents his recommendations either to the Committee on Physicians' Fees and Services (claims for ambulatory care or claims

Continued on Page 34

County Society Notes

CUMBERLAND

The 363rd meeting of the Cumberland County Medical Society was held on November 18, 1971 at the Stagecoach Restaurant in South Portland, Maine. There were 129 members and guests in attendance. Guests at the head table included: Mr. Stanley Hanson, representing the Southern Maine Comprehensive Health Planning Association; the Reverend Mother Dennis of the Sisters of Mercy; Mr. Halsey Smith, Chairman of the Board of Directors at the Mercy Hospital; Mr. Halsey Davis, Chairman of the committee of the Maine Medical Center and Mercy Hospital composed to study the hospital problem; Sister Mary Agnes of the Sisters of Mercy; and Mr. Hubert Hauck, Chairman of the Board of Trustees of the Maine Medical Center.

The Social Hour was well attended. Roast beef, baked potato, and lemon sherbet made up a pleasant menu.

The meeting was opened by the President, Dr. Lawrence Crane. It was voted to dispense with the reading of the minutes of the last meeting. President Crane appointed a nominating committee to report to the December meeting. This committee will be chaired by Dr. George F. Sager and will be made up of Drs. William L. MacVane, Jr., David S. Wyman, William J. Tetreau and Harold N. Burnham. There being no other business to come before the meeting, the meeting was adjourned by President Crane.

Dr. Crane then introduced the members of the Mercy Hospital Board of Trustees, and also the members of the Maine Medical Center Board of Trustees. Also introduced were the members serving on the committee of the Maine Medical Center and Mercy Hospital. Also in attendance and introduced by Dr. Crane were Mr. Jack Agger, Mr. Merrill Luthe, and Mr. Phillip Stultz representing the Board of Directors of the Osteopathic Hospital. Dr. Crane then introduced Mr. Halsey Davis, Chairman of the Maine Medical Center-Mercy Hospital committee to study the medical situation in Portland. Mr. Davis gave a brief sketch of the history of the committee, noting that in February 1968 an Area-Cooperation Committee was formed, had several meetings, but made no progress. This committee was abandoned to be reviewed in April 1971. The new committee, which has no name, has had eight meetings and has formulated some ground rules, the principal one being that all decisions are to be based on the principle of providing the best health care for the community. As an extension of this principle, no decision will be acceptable unless the standards of health care in the community are maintained or improved. Mr. Davis briefly sketched the obtaining of outside assistance and gave some background as to the hiring of Mr. Marvin Bostin. He stressed that Mr. Bostin was pressured by the committee into performing and coming up with the result perhaps a little sooner than Mr. Bostin would have preferred. In October 1971, Mr. Bostin recommended that the Mercy Hospital cease to operate as an acute care hospital. There are some other alternate proposals; that a holding corporation be set up to own the physical properties of the two hospitals and that a joint planning committee, single medical staff be formed. The proposal to do nothing and see if nature won't eventually find a solution seemed impractical and impossible to pursue. In general, Mr. Davis felt that the time pressures are unfortunate but decisions must be made soon, that this is truly a community problem, and that the solution must be toward the realization of a practical community health program.

Mr. Hubert Hauck, Chairman of the Board of Trustees of the Maine Medical Center, then spoke briefly regarding the attitude of the Maine Medical Center and stressed that the workings of the Committee should be toward what is best for the community.

Mr. Halsey Smith, Chairman of the Board of Trustees of the Mercy Hospital, spoke briefly about the formation of the Mercy Hospital by the Sisters of Mercy. In 1969, the Sisters of Mercy turned the policy-making over to the Board of Trustees, the Sisters remaining incorporators of the hospital.

Reverend Mother Dennis spoke, expressing her thanks at being invited to attend and participate and hoped that the meeting would lead to a solution beneficial to the community.

Mr. Halsey Smith went on to suggest that the problem facing the doctors was a community problem and the solution will lie in objective thinking toward a solution that satisfies the present demands and the future requirements of the community toward fulfillment of their total medical needs. Mr. Smith stated that the opening of the Richards Wing had a dire effect on the census of the Mercy and that the Mercy was operating with a loss in excess of $35,000/month. Some change is absolutely necessary. Mr. Smith outlined briefly the questionnaire that the medical profession in Cumberland County is to receive on 11/19/71 to probe the doctors' opinions and to receive input for the Mercy Hospital planning staff to aid them in outlining their future requirements, needs, and direction.

The formal presentation to the assembled doctors being completed, the meeting was opened to questions and comments. Dr. Thomas A. Martin outlined the surgical cases done at the Mercy Hospital, the number of laboratory tests and expressed the concern that if the Mercy Hospital were to close, the Maine Medical Center would be strained to the utmost to take up the slack. Dr. Stanley B. Sylvester noted that there was a decrease in the Maine Medical Center utilization although Mr. Philip Reiman stated that the occupancy is holding a steady 83-84%. Dr. Michael I. Leckie expressed his concern as to the care of emergency situations should Mercy be closed. Dr. Douglass W. Walker spoke of the development of the Department of Family Care to help take the load off the emergency division at the Maine Medical Center and other related problems to emergency outcare procedure. Dr. Philip P. Thompson, Jr. inquired as to the Mercy Hospital plans to expand and Mr. Smith answered that when it seemed that the occupancy at the Mercy Hospital was dropping steadily, plans were shelved because there seemed to be no way to pay for the new development should occupancy continue at a low rate. Dr. George O. Cummings expressed concern that if the Mercy closed, what would happen to the elective procedures that now are done at the Mercy. Dr. Clement A. Hiebert asked what was indeed the hospital bed requirement for a community of our size. Mr. Smith said that the Portland medical area was over-bedded by some 87-100 beds. Dr. David K. Lovely inquired if it would not be possible to close one or two floors for a short period of time. Mr. Kessler of the Mercy Hospital said that it was probably impossible to operate a good 100-bed hospital in the shadow of the Maine Medical Center. Less than 150-180 beds was an unsound proposition since this would not provide the facilities necessary to maintain a good hospital service. Dr. Maurice Van Lonkhuyzen inquired if the town should support one big hospital, or one big hospital and one small hospital. Dr. Eugene C. McCann pressed for maintenance of two hospitals. Dr. John R. Davy noted the change in the medical practice with improvement in the out-patient department, ambulatory care, and rising home care. He noted that the current figure today is probably somewhere in the neighborhood of 1.5 beds/thousand people. Dr. Philip J. Villandry noted that the Vermont problem, that is the joining of the Mary Fletcher and Bishop Hospitals in Burlington, had been accomplished although problems still were not entirely solved. Dr. Robert H. Pawle asked about the Maine Medical Center's financial status and it was noted that the Maine Medical Center had finished its financial year $90,000 in the black. Dr. Tetreau noted that the Mercy Hospital had served the community well and he felt that decisions should rest with the doctors with regard to

the Mercy Hospital's future and that we should not leave this decision to businessmen. He felt the Medical Society should be more active and more responsible. Dr. Tibor Doby questioned what would happen to the acute care patients should the Mercy Hospital not be open. Dr. Charles R. Glassmire inquired if the Mercy Hospital should give up some extra programs and go back to being a small private care hospital. Mr. Smith suggested that perhaps the program of nursing or the obstetrical services could be entirely phased out at the Mercy. Dr. Walter B. Goldfarb inquired about the cost of the Bostin report which was noted to be $12,000 to date. Dr. William J. Hall, III inquired about the possibility of forming a Mercy wing of the Maine Medical Center. Dr. Donald F. Marshall urged that the medical community support the Mercy Hospital and continue to operate the Mercy Hospital as a private acute care hospital. Dr. Charles R. Geer thought that it might be possible to modify the Mercy Hospital's activity but urged that the Mercy Hospital be kept active. Dr. Cummings questioned that the Maine Medical Center could care for the patients if the Mercy Hospital closed. Mr. Luthe, of the Osteopathic Hospital, noted that the Osteopathic Hospital was adding 40+ beds and running a 100% occupancy on many days. Dr. Lawrence M. Leonard suggested that the Mercy Hospital might perhaps take routine surgical cases while the Maine Medical Center worked more in the field of special surgical procedures.

At 10:00 p.m., President Crane asked all those who wished a monolithic hospital in Portland to raise their hands. None responded. He asked all those who wished a monolithic hospital with a Mercy wing to raise their hands. None responded. President Crane asked a show of hands for all those wishing the Mercy to continue as an acute care hospital. The response was unanimous.

The meeting was adjourned by President Crane at this time. It was felt that this meeting was significant and represented an in-depth probing of the subject. The medical profession seems to wish the Mercy Hospital to continue as an acute care hospital. The problem facing the Mercy Hospital and the Maine Medical Center-Mercy Hospital Exploration group is how this can best be accomplished.

DOUGLAS R. HILL, M.D., *Secretary*

KENNEBEC

The annual husbands and wives meeting of the Kennebec County Medical Association was held at the Augusta Country Club on May 20, 1971. Dinner was served to 80 members and guests.

The business meeting was opened by the President, Dr. Paul A. Jones, Jr. and the minutes of the last meeting were accepted. The following physicians were elected to membership: Drs. Robert L. Shelton and Paul J. Jabar, both of Augusta. The applications of two new applicants were referred to the Council, i.e., Drs. William E. Atlee and Teodore C. De La Cruz, both of Augusta.

Dr. Jones then introduced Mrs. Terrance J. Sheehan, President of the Maine Medical Association Auxiliary, and of the Auxiliary to our organization, who gave a most enjoyable talk on Health Careers. Mrs. Sheehan demonstrated projection equipment which our Association has helped to purchase as a teaching aid in the Auxiliarys' Health Careers Program.

The meeting was adjourned by Dr. Jones at 9:30 p.m.

The Kennebec County Medical Association met at the Silent Woman Restaurant in Waterville, Maine on September 16, 1971. Following the social hour and dinner (served to 50 members and guests), the business meeting was opened by the President, Dr. Paul A. Jones, Jr. The minutes of the last meeting were read and accepted. Dr. William E. Atlee, Jr. of Augusta was elected to membership and the name of Dr. J. Patrick Hooker of Augusta was announced as a candidate for membership and referred to the Council.

The Association's representative to the M.M.A. Executive Committee, Dr. Richard T. Chamberlin then gave an illustrated resumé of the work and progress of the State Peer Review Committee. Dr. Chamberlin also introduced a "Peer Review Motion," seconded by Dr. Darlington. This motion was brought to a vote by Dr. Jones and passed by a wide margin.

Dr. Jones then introduced Mr. James R. Castle, Vice President of the New England Physician's Retirement Services, Inc. and sponsored by the Council of the New England State Medical Societies, who gave a thorough and enjoyable discussion of the advantages of incorporation to the practicing physician.

The meeting was adjourned by Dr. Jones at 9:30 p.m.

The Kennebec County Medical Association met at the Augusta House on October 21, 1971. The business meeting was opened by the President, Dr. Paul A. Jones, Jr. The minutes of the last meeting were read and accepted. Dr. Chamberlin gave a brief report on the progress achieved in organizing a County Peer Review Committee.

There was then a discussion of what role our organization should play in the Annual Diabetes Detection Drive sponsored by the Diabetes Committee of the Maine Medical Association. Our Executive Committee member was asked to seek further information at the Maine Medical Association level about this program and to bring to our State organization opinions that have been expressed by our members over the past three years in reference to this program.

The name of Dr. Henry J. Wheelwright of Augusta was announced as a new candidate for membership and Dr. J. Patrick Hooker of Augusta was elected to full membership.

Dr. Jones then introduced Leonard Rosenthall, M.D., Director, Division of Nuclear Medicine, Montreal General Hospital, who presented an excellent review of recent advances in the field of Nuclear Medicine. The meeting was adjourned by Dr. Jones at 9:45 p.m.

The Kennebec County Medical Association met at the Jefferson in Waterville, Maine on November 18, 1971. Dinner was served to 45 members and guests. The business meeting was conducted by the President, Dr. Paul A. Jones, Jr. and included reading and acceptance of the previous meetings' minutes.

The transfer of Dr. Andre M. deFreitas, M.D. (V.A.C., Togus) from the Penobscot County Medical Society was approved. Dr. Henry J. Wheelwright of Augusta was elected to membership.

Dr. Jones then appointed the following members to the nominating committee: Drs. Earle M. Davis, Anthony E. Lepore and Joseph P. Senenky.

The evenings scientific program was given by George P. Kozak, M.D. of the Elliott P. Joslin Clinic, Boston, Massachusetts, who reviewed the subject of Diabetic Neuropathy as it affects the eye, G.I. and G.U. systems, and the musculo-skeletal systems.

The meeting was adjourned by Dr. Jones at 9:30 p.m.

FRANCIS A. SPELLMAN, M.D., *Secretary*

HANCOCK

The 438th meeting of the Hancock County Medical Society was held on December 8, 1971 at Jasper's Restaurant in Ellsworth, Maine, with the President, Dr. John G. Murray, Jr. presiding and 12 additional members present. Also attending were Mrs. Murray and the fiancée of Dr. Charles H. Knickerbocker.

A report of the House of Delegates meeting of the Maine Medical Association, December 5th in Bangor, was given by the Delegate, Dr. John C. Van Pelt, with comment and questions. Peer Review Organization on the local and State level was discussed pertinent to the House of Delegates meeting. A lengthy discussion of the possible reorganization and plans for meetings of the County Medical Society was debated since this was the

annual meeting and there had been some talk of the need for drastic alterations because of notoriously poor attendance at the last 3 monthly meetings, September, October and November. The sense of this discussion was that officers be elected as usual and a regular monthly meeting be held in January at which time various proposals raised at the present meeting would be acted upon.

The election of officers that followed resulted:

President: Dr. John C. Van Pelt, Ellsworth

Vice-President: Dr. Bradley E. Brownlow, Blue Hill

Secretary-Treasurer: Dr. Kendall A. Gerdes, Northeast Harbor

Delegate to the M.M.A. House of Delegates: Dr. John G. Murray, Jr., Blue Hill. Alternate: Dr. John R. Hewson, Southwest Harbor

Censors: Drs. Robert D. Wilson, Bar Harbor (1 yr.), Robert F. Russell, Penobscot (2 yrs.) and John D. McIntyre, Blue Hill (3 yrs.)

The last item of business was the acceptance of two members' applications, Dr. Edward B. Gilmore and Dr. Willard E. Andrews, both of Bar Harbor.

Meeting adjourned at 9:30 p.m.

BRADLEY E. BROWNLOW, M.D., *Secretary*

ANDROSCOGGIN

The meeting of the Androscoggin County Medical Association was held at St. Mary's General Hospital in Lewiston, Maine on November 18, 1971. The meeting was opened by the President, Dr. Charles W. Steele at 8:45 p.m., with 16 members present.

The minutes of the October meeting were approved as read.

Dr. John J. Busch was elected to Senior membership.

The nominating committee was appointed: Drs. John A. James, Chairman, Henry C. Thacher and Robert D. Wakefield.

Dr. Stanley D. Rosenblatt discussed the meetings of the Peer Review Committee. He emphasized the Scope of Peer Review and Reciprocal Responsibility. Dr. Wilfrid A. Cloutier then discussed other points of the program.

Dr. Linus J. Stitham, President of the Maine Medical Association, further discussed development of peer review. Raw data statistics were presented briefly.

Dr. Steele took the floor to discuss paragraph at end of guidelines: to put in any changes necessary. It was moved and voted to adopt Guidelines as amended.

Peer Review Committee appointed by Dr. Steele, some appointments to end January 1973 and the other half to end January 1974.

Dr. Steele thanked the Committee for their zealous efforts.

It was moved and voted to hold the dinner meetings on Thursday evenings – 6:30 to 7:00 p.m. Social, and Dinner at 7:00 p.m.

Meeting adjourned at 9:55 p.m.

The annual meeting of the Corporators of the Androscoggin County Medical Association was held at the Central Maine General Hospital on December 16, 1971. The meeting was opened at 8:35 p.m. by the President, Dr. Charles W. Steele, with 26 members present.

Dr. Thomas F. Shields introduced the speaker of the evening, Mr. Willard Stone of the Maine Employment Security Service, who spoke on the new employment tax which became law on September 23rd, and starting January 1, 1972 covers one employee or more. In August 1970, it became law of the land (higher education, hospitals, etc.); practically everyone is in now. Two and one-half percent of gross payroll up to $4,200; each employee 2% to State quarterly, ½ of 1% annually to the Government. Twenty-six weeks' basic allowance, may have 13 weeks added depending on unemployment percentage in the area. Employer pays the entire tab as when originally passed in 1936.

Applications of Dr. Kuck and Dr. Cabatingan referred to the credentials committee.

Dr. Otis B. Tibbetts reported for the finance committee. Moved and voted to accept the report.

Dr. Gilbert R. Grimes reported for public relations committee. Oral polio vaccine 710,000. Once per month program with WLAM committee open to suggestions.

Dr. Richard M. Swengel reported for Medico-legal committee (maybe 4 cases pending).

Dr. Andre P. Marcotte reported for Disaster Drills. Two last year and probably next year, unannounced.

Treasurer's report accepted.

Dr. Thomas Shields reported on the December 5th meeting of the House of Delegates held in Bangor. One hundred and five boys in Medical Schools.

Dr. Steele reviewed the year's accomplishments and thanked all committees for their work.

Dr. John A. James reported for the nominating committee. It was moved and voted to cease nominations and secretary to cast one ballot for the slate. Voted on favorably. The following officers elected for 1972.

President: Dr. Thomas F. Shields, Lewiston

Vice-President: Dr. Gilbert R. Grimes, Lewiston

Secretary-Treasurer: Dr. Richard M. Swengel, Lewiston

Delegates to the M.M.A. House of Delegates: Drs. Charles W. Steele and Gilbert R. Grimes, both of Lewiston. Alternates: Drs. Richard W. Taylor and Robert F. Kraunz, both of Lewiston

Councilor: Dr. Gerard L. Morin, Lewiston

Dr. Steele turned the chair over to Dr. Shields.

Moved and voted that the year's agenda of meetings be sent early to all members.

Dr. Steele was given a rising vote of thanks.

Meeting adjourned at 10:15 p.m.

DONALD L. ANDERSON, M.D., *Secretary*

NEWS FROM BLUE CROSS AND BLUE SHIELD

Continued from Page 31

where the physician's fees are questionable) or to the Committee on Institutional Services. These Committees adopt, reject, or modify the recommendations of the initial reviewing physician and notify the physician, the third-party payer, and, when appropriate, the hospital utilization review committee of their recommendations.

The Missouri Model

The Health Care Foundation of Missouri represents the third type of Foundation and the type most nearly akin to the Maine Medical Association's Peer Review Committee. This type of Foundation is primarily involved in developing a peer review mechanism for government programs such as Medicare and Medicaid, though the mechanism is available for use by carriers or even consumers upon request.

The Missouri Foundation operates on a state-wide level with five Regional Review Panels. It does not set minimum standards for health care coverage. Instead, it sees its role as that of providing an effective peer review mechanism to monitor quality, appropriateness, and cost of care.

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Subdural Effusion and Hematoma in Infants

Daniel A. Rock, M.D.*

The incidence of cerebral subdural accumulations of fluid is known to be high in infants. In the form of effusion or hematoma, subdural fluid complicates a variety of congenital, infectious or traumatic disease processes. The origin and treatment of such collections of fluid are still generally under discussion. This paper presents the incidence and treatment of subdural effusion and hematomas in infants under two years of age at the Central Maine General Hospital during the period 1959-1970, as the experience of one neurosurgeon.

In general, subdural effusions result from meningeal infections, and hematomas from trauma. During the period under consideration, there were admitted to the Central Maine General Hospital 22 infants with H. influenzae meningitis, of whom 9 developed subdural effusions, and 202 infants with craniocerebral injury of whom 9 were treated for subdural hematomas. These and four other cases with subdural accumulation of fluid are listed in Table 1 according to etiology.

Table 1

Etiology of 22 Cases of Subdural Effusions and Hematomas		Number of Cases
Infection		11
Meningitis due to H. influenzae	9	
Meningitis of unknown cause	1	
Pertussis (hematoma associated with coughing)	1	
Associated with Congenital Brain Abnormalities		2
Hamartoma of the brain	1	
Communication hydrocephalus (complication of atrio-ventricular shunt)	1	
Craniocerebral Trauma		9
Birth Trauma	4	
Accidental Falls	4	
Unknown Cause	1	
Total		22

*Chief Section of Neurosurgery, Central Maine General Hospital, Lewiston, Maine 04240.

A variety of symptoms and signs prompted investigation of the subdural space (Table 2) and "routine" cerebral subdural taps were employed where any clinical suspicion of subdural fluid existed.

Table 2

Findings Prompting Investigation of the Cerebral Subdural Space	
Enlarged head	3
Spreading sutures	1
Full fontanelle	1
Retinal hemorrhage	1
Vomiting	3
Seizures	3
Hemiparesis	2
Failure to thrive	1
Skull Fracture	3
Meningitis, H. influenzae	8

The presence of cerebral subdural accumulations of fluid is determined by bilateral subdural taps, using a #20 infant spinal needle inserted at the level of the coronal suture, lateral to the anterior fontanelle. Cerebral subdural fluid associated with H. influenzae meningitis is usually moderately xanthochromotic and contains little or no blood, whereas subdural hematomas are usually bloody, and the supernatant fluid is deeply xanthochromic.

The diagnosis of H. influenzae meningitis is, of course, established by spinal fluid culture. Treatment of an associated cerebral subdural effusion by repeated subdural taps commonly controls the effusion, often in a relatively short time. An exception to this rule was seen in a patient who had the following clinical picture:

A 22-month-old male infant was admitted to the CMGH in 1961 suffering from H. influenzae meningitis, diagnosed by spinal fluid culture. He improved rapidly on chemotherapy, and cerebral subdural taps were not felt necessary. Discharge took place after 15 days. Three months later the child was readmitted because of re-

peated seizures. Repeated bilateral subdural taps yielded profusely bloody effusion with deeply xanthochromic supernatant fluid. A right burr hole demonstrated a subdural hematoma between thickened inner and outer membranes, with a 2.0 cm. depression of the cerebral cortex below the dura. Right craniotomy revealed a liquified hematoma extending over the entire convexity of the hemisphere. This was removed together with most of the inner membrane. Two weeks later a similar left craniotomy was performed. Both operations were without complications and the seizures promptly became controllable. Follow-up at three months recorded four mild seizures in that interval.

Definitive treatment of the cerebral subdural accumulations of fluid in this group of 22 patients is indicated in Table 3.

Table 3

Type and Etiology of Fluid	Number of Patients	Treatment by Repeated Taps	Treatment by Craniotomy
A. Subdural Effusion	12		
1. Due to H. influenzae meningitis	9	8	1
2. Due to meningitis of unknown cause	1	1	
B. Traumatic Hydromas	2	1	1
C. Subdural Hematomas	10		
1. Associated with pertussis	1		1
2. Associated with congenital brain abnormality	1		1
3. Due to trauma	8		8

The indication for an exploratory burr hole is found in the continued presence of bloody and deeply xanthochromic fluid in large quantities obtained on repeated taps, especially in an infant in whom history and/or x-rays suggest trauma. The burr hole is placed just anterior to the cerebral subdural tap site described above. Through the burr hole, the extent of cortical depression and the presence of subdural membranes is determined.

The craniotomy performed is extensive, and positioned so as to permit access to the entire convexity of the hemisphere. The hematoma is evacuated and the brain well irrigated. The outer membrane is not removed. The relatively avascular inner membrane is removed as extensively as possible, but that portion about the cerebral veins close to the sagittal sinus is spared to avoid possible bleeding at this site.

Bilateral craniotomies are performed with two-week intervals between operations. All patients had subdural taps postoperatively.

One patient is of particular interest in that a bloody postoperative tap, unchanged from preoperative subdural taps, was obtained after the removal of a large hematoma from the right convexity of the brain. This patient was re-explored by craniotomy and a huge interhemispheric hematoma (150-200 cc) was found communicating with a subdural hematoma over the convexity of the opposite (left) hemisphere. An extensive rupture of the falx cerebri was present just below the sagittal sinus. Recovery followed unilateral evacuation of the bilateral hematomas.

Table 4

The Definitive Treatment of Subdural Fluid by Craniotomy

Number of patients		12
Unilateral craniotomies	7	
Reoperation	1	
Bilateral craniotomies	5	
Total number of craniotomies		18
Postoperative complications		3
Infection	0	
Postoperative bloody subdural tap	1	
Surgical (false) meningocele	2	

The two surgical meningoceles represent associated traumatic subdural hydromas. One patient was treated successfully with a direct dural graft, and the other by a subdural-peritoneal shunt. The shunt later became infected and was removed without recurrence of the meningocele.

Every patient recovered satisfactorily. Two patients with hematomas, exhibiting preoperative seizures, had occasional seizures during the first few months postoperatively. Long term follow-up data are being collected, but are as yet incomplete.

The inadequacy of subdural taps as the sole treatment of subdural hematoma is well illustrated by the patient with the extensive interhemispheric hematoma. On the other hand, two patients with bilateral hematomas required only unilateral craniotomy because the contralateral fluid did eventually disappear. In both patients, the hematoma disappeared after many weeks and infrequent tapping during which time surgical meningoceles were treated.

In summary, subdural effusions and hematomas in infants are not uncommon and may be found in numbers proportional to the diligence with which they are suspected and sought by cerebral subdural taps. Subdural effusions due to H. influenzae meningitis should be differentiated from subdural hematomas due to trauma. The distinction is important, since repeated subdural taps will usually control H. influenzae effusion while burr hole and craniotomy are usually required in the management of subdural hematoma. It is interesting that in this series of cases one H. influenzae effusion (occurring 3 months post-meningitis) had the characteristics of a hematoma, and required craniotomy, and that one hematoma was perhaps the indirect result (trauma from coughing) of a pertussis infection.

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Continued on Page 50

The Systolic Click - Late Systolic Murmur Syndrome

A Case Report

Charles W. Steele, M.D., F.A.C.P. and Robert F. Kraunz, M.D.*

Introduction

Until the past decade, late systolic murmurs accompanied by mid or late systolic clicks were regarded as innocent phenomena[1,2] and probably extra-cardiac in origin.[3,4,5] Since 1961, the syndrome of systolic click – late systolic murmur (prolapsed mitral valve syndrome) has been extensively investigated.[6–11] These auscultatory features are associated with late mitral regurgitation due to systolic prolapse of one or both mitral leaflets into the left atrium.[6–8,10] The prolapse is manifest as a ballooning or billowing of the valve leaflet, particularly the posterior leaflet, on cineangiography.[10,12,13] The systolic non-ejection click has been attributed to sudden tensing of the chordae tendineae[6] or of the everting valve leaflet.[14] The syndrome has been increasingly recognized among cardiologists, although many general physicians are not well acquainted with its features. This entity is not uncommon, and most typically occurs in women. It has generally been considered benign, although electrocardiographic abnormalities and arrhythmias occur frequently and sudden death has been reported.[7,8] Moreover, subacute bacterial endocarditis may occur secondary to the mitral valve defect.[15] The condition is due to an abnormality of the mitral valve apparatus, usually in the form of a lax and elongated chorda or redundant valve leaflet.[6–9] It may be familial,[7,8] and it has been associated with Marfan's syndrome[7,13,16] and myxomatous change in the leaflets.[12,13,17] Less commonly, left ventricular contraction abnormalities,[18] polyarteritis,[8] and papillary muscle dysfunction secondary to coronary artery disease[19] have been cited as etiologic factors. The postero-anterior and lateral chest x-rays have been reported as showing a striking frequency of thoracic bony abnormalities such as pectus, excavatum, straight thoracic spine, and scoliosis, occurring alone or in combination, in patients with isolated systolic clicks or systolic clicks and late systolic murmurs.[27]

We present a case history of a middle-age housewife with a systolic click – late systolic murmur syndrome and several characteristic features: atypical chest pains, electrocardiographic changes, clinical and x-ray evidence of pectus excavatum, ventricular irritability, and unexplained, possibly psychoneurotic, symptoms. A diagnosis was not established for many years, despite repeated examination culminating in right and left heart catheterization with left ventricular cineangiography. The correct diagnosis was finally arrived at by two simple, noninvasive techniques: phonocardiography and ultrasound echocardiography.

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Case History

B. N., a 45-year-old housewife, was seen in referral for the first time on October 10, 1968. She related a three-year history of moderate effort dyspnea and easy fatigability. She also complained of intermittent sensations of lightheadedness and nondescript precordial discomfort. Her medications had consisted of chlorothiazide, procainamide, and meprobamate. The patient was first told that she had a heart murmur at age 24, after the birth of her first child. There was no history of rheumatic fever or chorea. She had four full-term, normal pregnancies without cardiovascular symptoms.

The past history was negative except for headaches associated with her menstrual periods of at least ten years' duration. She had also noted menstrual irregularity for two to three years. She had taken an oral contraceptive since 1960, following the birth of her last child. The family history was negative for significant cardiovascular disorders, although one sister died suddenly of unknown cause.

Physical examination at that time revealed a well-developed, well-nourished woman in no obvious distress. Her blood pressure was 130/80, and her pulse rate was 100 and regular except for an occasional ectopic beat. There was no cardiomegaly or abnormal precordial impulse. The first and second heart sounds were normal, and there were no diastolic filling sounds. A grade III/VI systolic murmur was heard at the cardiac apex. It began in midsystole and persisted to the second sound. Neither a systolic click nor a diastolic murmur was audible. A moderate pectus excavatum was noted. There was no evidence of cardiac decompensation. Cardiac fluoroscopy revealed questionable slight left ventricular hypertrophy and left atrial enlargement. The barium-filled esophagus was not displaced. The electrocardiogram showed an abnormal T wave vector with inverted T waves in leads III and AVF (Fig. 1). The patient was followed closely (CS) over the next three years. Her symptoms of intermittent dizziness and dyspnea on effort (particularly involving the use of her arms) persisted. Procainamide, a thiazide diuretic, and potassium supplements were continued. She had two therapeutic trials on digitalis. Digitoxin was started in October 1968, but the frequency of premature ventricular contractions (PVC) increased, and the drug was discontinued after a few weeks. She took digitalis leaf from December 1969 to May 1, 1970 when ventricular bigeminy (Fig. 2) was noted, and the drug was stopped. On neither occasion did digitalis produce definite relief from her symptoms. On May 8, quinidine sulfate (200 mg q.i.d.) was substituted for procainamide. Over the next few days, she noted dizziness and a severe headache associated with the onset of her menstrual periods.

On May 12, 1970, she suddenly had a sharp bitemporal, lancinating headache. The pain cleared spontaneously, but approximately 20 minutes later she lost consciousness. After regaining consciousness, her behavior was uncontrollably violent. She was subdued by intramuscular chlorpromazine and was admitted to CMG Hospital for further evaluation. Following admission, she had one large emesis but then recovered rapidly

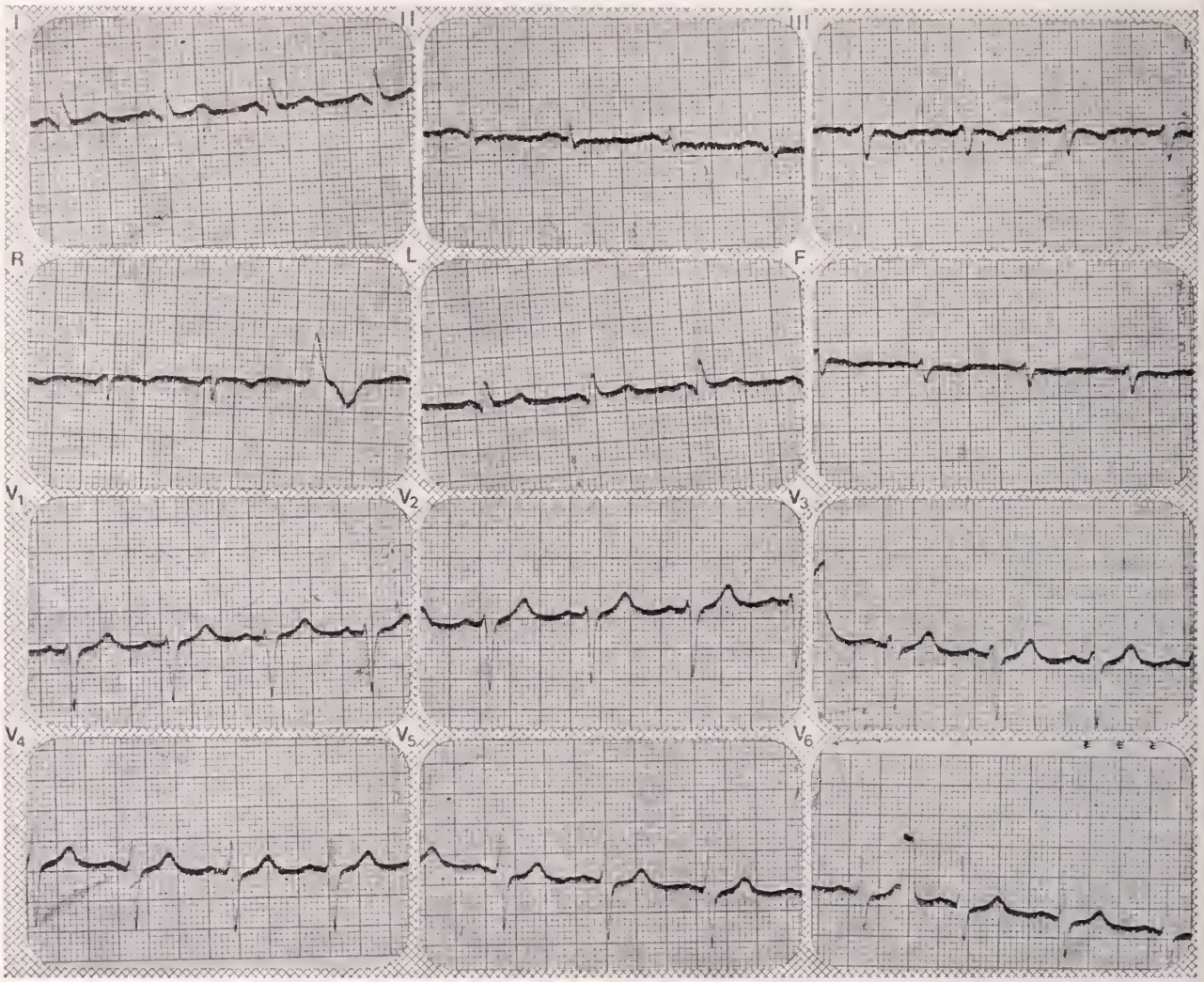


Fig. 1. ECG of 10-10-68 showing an occasional PVC. The T waves are low in amplitude in lead II and inverted in leads III and AVF.

without further syncopal episodes. There had been no previous history of loss of consciousness. She denied at that time any recent chest, shoulder, or arm discomfort. She had noted intermittent dizziness for a few weeks, and there had been slight swelling of her feet and ankles related to the menstrual cycle.

Physical examination showed a listless woman, oriented as to time and place. Her vital signs were normal. The cardiovascular examination was unchanged, though the apical systolic murmur was somewhat softer. The rest of the general physical examination, including a thorough neurological examination was unremarkable. A complete blood count, BUN, FBS, and cholesterol were normal. The urinalysis was normal except for 30 mg % albumin and a rare, coarse granular cast. The serum electrolytes on the second hospital day were: sodium 138 meq/1 potassium 3.3 meq/1, bicarbonate 29 meq/1 and chloride 97 meq/1. On the fourth hospital day, the serum potassium was 3.2 meq/1, and the dose of potassium supplements was increased. On 5-18-70, the electrolytes were: sodium 144 meq/1, potassium 3.9 meq/1, bicarbonate 26 meq/1 and chloride 105 meq/1.

A bedside chest x-ray was normal. An electrocardiogram taken on 5-13-70 (Fig. 3) showed frequent PVC's, a frontal plane QRS axis of –45° and poor R-wave progression from V1 to V3. Prominent, wide and inverted T waves were noted in leads I, II, AVL and V3 – V6. The QT interval was prolonged to 0.44 seconds, and the corrected QTc) was 0.53 seconds. Serum magnesium and quinidine levels were not available, and a serum calcium was not obtained. Subsequent electrocardiograms showed shortening of the QT intervals, although the abnormal T wave vector persisted. A tracing on 5-18-70 showed a frontal plane QRS axis of 30°, "coved" ST segments in leads V4-V6, and T wave inversion in I, AVL, and V4-V6. The QT interval was normal, 0.36 seconds.

A neurological consultation was obtained on 5-18-70. The neurologic examination was again normal and the consultant could not explain the patient's syncopal episode on a neurologic basis. An electroencephalogram (5-19-70) was normal. The patient was discharged on May 25, 1970 after an uneventful hospital course. Her discharge medications included meprobamate, trichlormethiazide, potassium chloride, and quinidine sulfate. An electrocardiogram on June 26, 1970 (Fig. 4) showed an occasional PVC. The frontal plane QRS voltage was –20°. There was "coving" of the ST segment in I, AVL, and V2-V6, and the T waves were inverted in those leads. The QT interval was 0.40 and the QTc was 0.47.

The patient was admitted to the Maine Medical Center on 7-5-70 for elective cardiac catheterization. A "loud first heart sound and palpable S4 filling sound" at the apex was described.

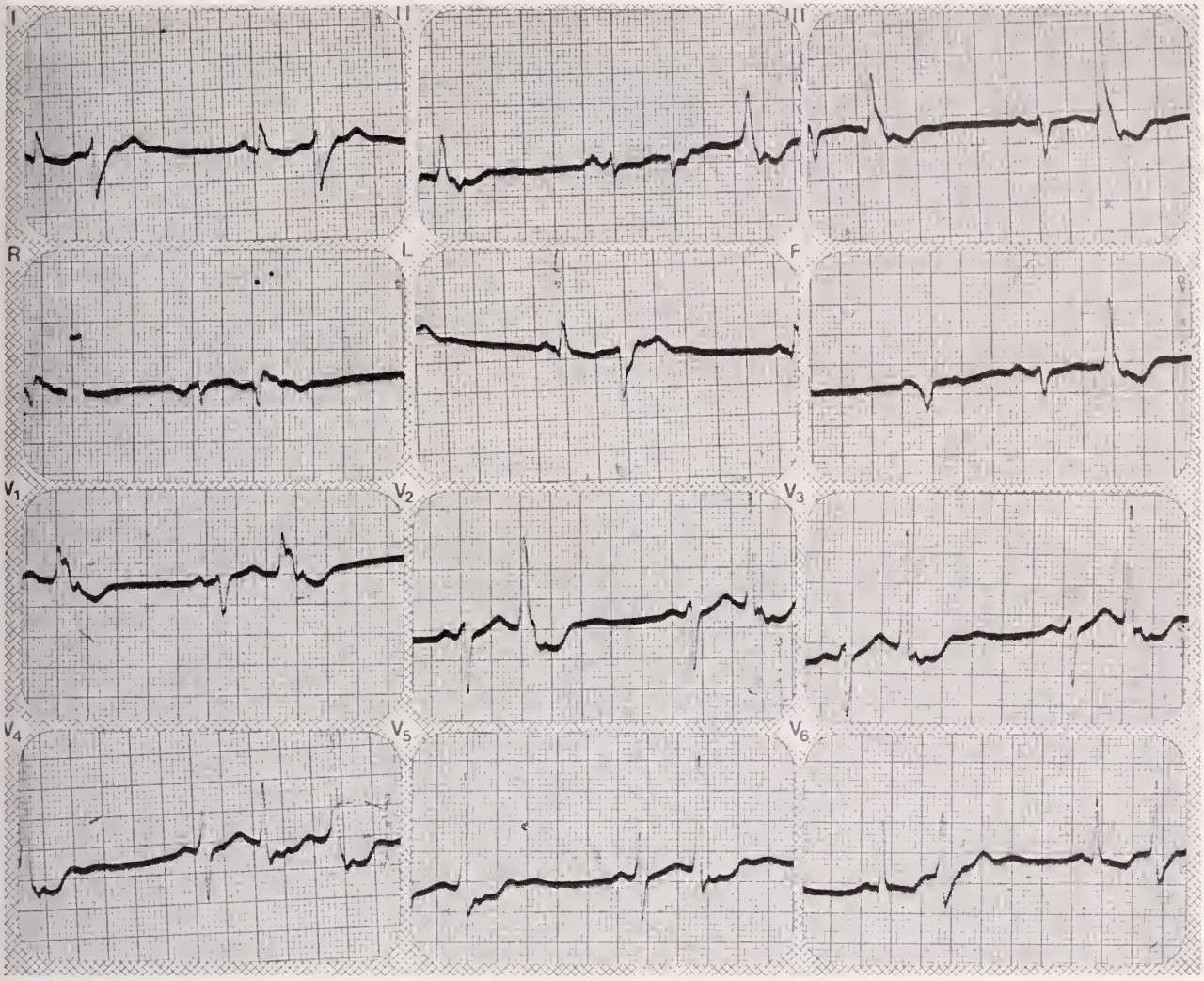


Fig. 2. ECG of 5-1-70 showing ventricular bigeminy. In some leads, two successive ectopic beats are evident. Digitalis effect is present. The patient was taking digitalis leaf at the time of this tracing.

Otherwise, the cardiovascular examination was unchanged from previous observations. A two-hour postprandial blood sugar was 152 mg%. Otherwise, all laboratory studies including calcium and phosphorus were normal. Pulmonary function studies were normal. The chest x-ray again showed mild pectus excavatum and slight left atrial prominence, but the overall heart size was considered to be within normal limits. On July 7, 1970, the patient underwent right and left heart catheterization. All right-sided pressures and the resting cardiac output were normal. There was no evidence of an intracardiac shunt. The left ventricular end-diastolic pressure was slightly elevated to 14 mm Hg, but increased to 28 mm Hg following left ventricular angiography. A withdrawal pressure tracing from the left ventricular apex to the aorta showed no evidence of a gradient across the ventricular outflow tract. Central aortic systolic pressure and pulse pressure decreased slightly in the beat following an extra-systole, similar to the response seen in hypertrophic subaortic stenosis. A left ventricular cineangiogram revealed minimal enlargement of the left ventricular chamber. However, there was no evidence of mitral regurgitation or left ventricular outflow obstruction. The conclusion was that the patient might have a cardiomyopathy, but that her symptoms were considerably out of proportion to any objective abnormality. It was advised that any cardiovascular disability be de-emphasized and that the patient be encouraged to increase her activities.

Despite reassurance about the catheterization findings, the patient continued to be symptomatic with dyspnea on minimal activity, spells of lightheadness, and fatigability. An electrocardiogram in November 1970 showed a normal frontal plane QRS axis (+30°). The T waves had returned to normal in the precordial leads, but there was still "coving" of the ST segment and T wave inversion in leads III and AVF. Her medication consisted of quinidine sulfate 200 mg five times daily, trichlormethiazide 4 mg daily, potassium supplements, and frequent injections of a mercurial preparation for intermittent edema of the lower extremities.

On April 21, 1971, she was admitted to CMG for further cardiovascular evaluation. She had noted some sharp pains in her left arm, left shoulder, and beneath her left breast intermittently for a few months. These pains usually occurred with activity and were relieved by 15 minutes of rest. They had been infrequent in the week before admission. Although she had made a minimal effort to increase her activity since the previous summer, the attempt was unsuccessful.

Physical examination revealed a pleasant woman who seemed to have a rather indifferent attitude toward her prolonged history and rather striking symptoms. There were frequent premature beats with intermittent bigeminy, and a grade II-III/VI late systolic murmur was again heard at the cardiac apex. The intensity of the murmur decreased during the straining phase of

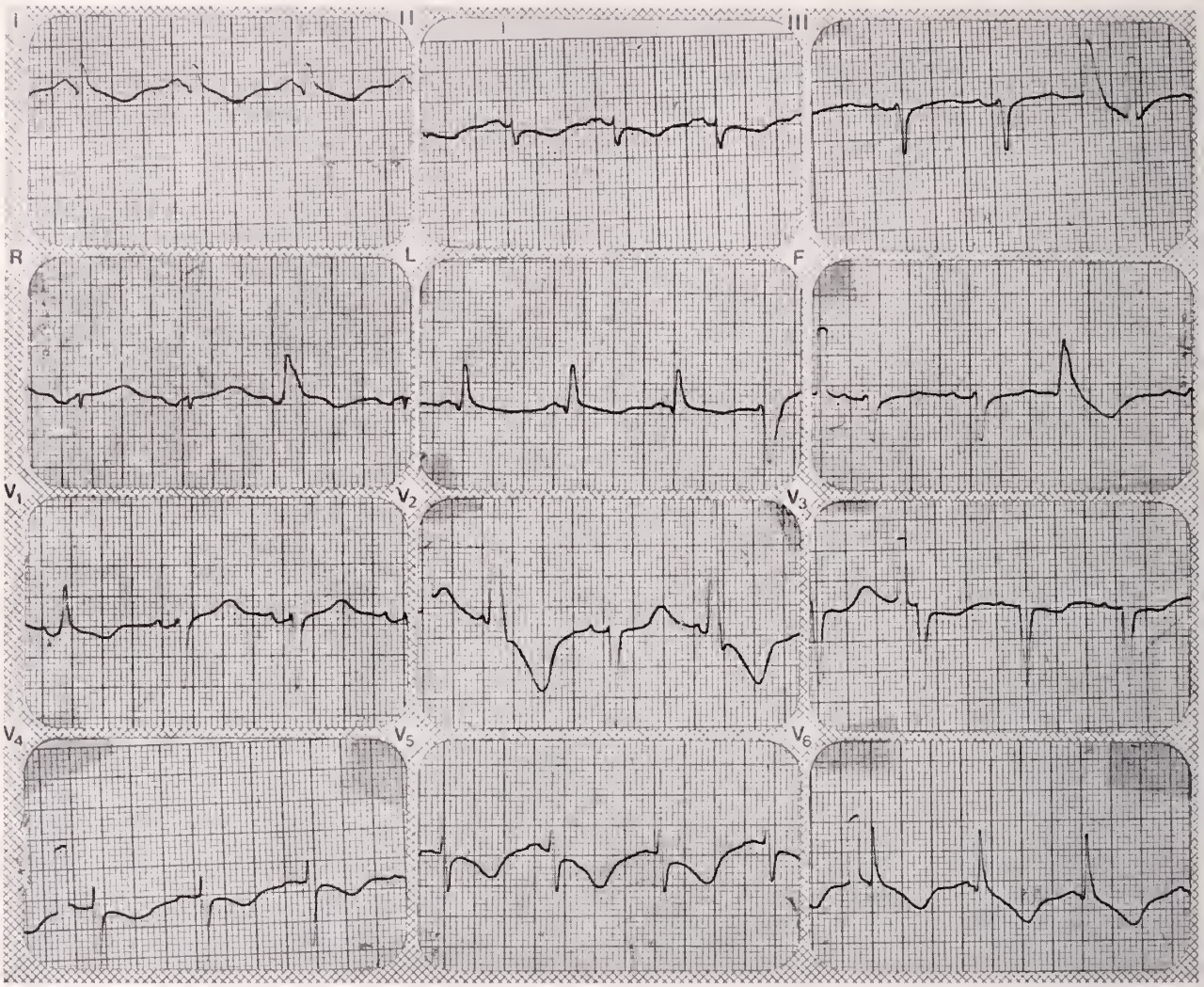


Fig. 3. ECG taken 5-13-70, one day following a syncopal episode, showing frequent, late PVC's, left axis deviation (–45°), and prolongation of the QT interval. Broadly inverted T waves are particularly noted in lead I and the left precordial leads.

the Valsalva maneuver. The murmur was noted to be louder when the patient was sitting than when she was supine. There was no evidence of significant cardiomegaly or cardiac decompensation.

Complete blood count, BUN, urinalysis, and electrolytes were entirely normal. A 24-hour radioactive I^{131} uptake was 37%. The electrocardiogram was unchanged from the previous tracing except for an increased frequency of multifocal PVC's. Chest x-rays again showed a normal sized heart and clear lung fields. A phonocardiogram (Sanborn twin beam) was performed and verified the presence of a late systolic murmur at the apex and low left sternal boarder (Fig. 5). An intermittent mid-to-late systolic click was also seen, particularly with a premature ventricular beat (Fig. 5). An echocardiogram (Hoffrel ultrasonascope) visualized the motion characteristics of the anterior leaflet of the mitral valve. During systole, there was an abnormal posteror displacement of this leaflet compatible with the systolic click – late systolic murmur syndrome (Fig. 6).

The patient was discharged from the hospital on no medication except meprobamate as needed for nervousness. She returned to the hospital on May 5, 1971 for a double Master's test. Immediately after exercise, her cardiac rate increased to 120 beats/min. PVC's were more frequent and of multifocal origin. There were occasional salvos of two premature beats in succession. No significant ST segment changes were observed. The cardiac rate slowed to 90 beats/min. at the end of 8 minutes. A phonocardiogram was repeated in the supine, standing, and squatting positions to study the effects of postural variation on the patient's auscultatory findings (Fig. 7). During standing, the systolic murmur became much louder in intensity and longer in duration (systolic whoop). A systolic click was again more easily identified with a premature beat. The murmur became softer in intensity, shorter in duration, and later in timing when the squatting position was assumed.

Propranolol 10 mg q.i.d. was initiated. The contraceptive pill was discontinued, and the patient was encouraged to resume normal activity. She did well on this regimen and noted little exertional dyspnea or ankle edema. She was able to resume all previous activity except heavy housework. Over-exertion still produced pain in her left arm with radiating numbness down to her fingertips. She was last examined on October 4, 1971. A moderate number of ectopic beats were present. A grade II/VI late systolic murmur was heard at the apex in the supine position, and this increased to a grade IV/VI mid-systolic murmur when the patient assumed the sitting position. A faint systolic click was audible along the sternal border. Her electrocardiogram showed sinus bradycardia, a moderate number of PVC's, and inverted T waves in leads II, III, and AVF.

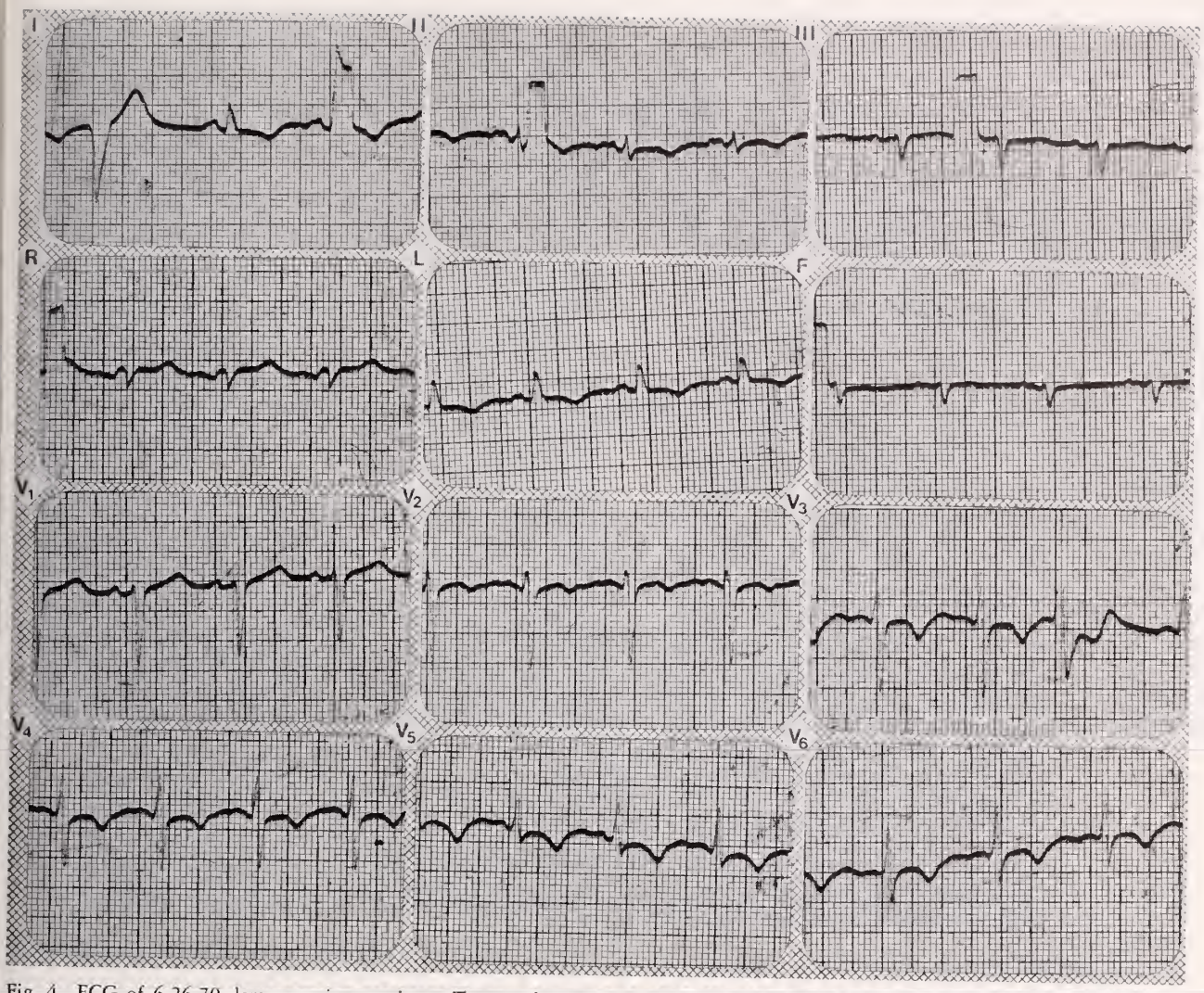


Fig. 4. ECG of 6-26-70 demonstrating persistent T wave changes in leads I, II, AVL, and V2-V6. "Coving" of the ST segment is noted in those leads. The QT interval is normal.

Discussion

Systolic mitral valve prolapse in the systolic click – late systolic murmur syndrome generally produces minimal mitral regurgitation of little hemodynamic significance.[7,8,10] Cardiomegaly and cardiac decompensation are unusual. However, a constellation of clinical features, many of which are poorly understood, has been recognized in patients who present with systolic clicks and late systolic murmurs. Hancock and Cohn[7] reported 40 cases of this syndrome. Mid-systolic clicks and late systolic murmurs were audible at the apex in 28 patients. In 12 cases, only a systolic click was audible. Palpitations, atypical, vague chest pain lasting many hours, and mild dyspnea were common complaints. Additional symptoms of possible psychoneurotic origin were present in 15 cases. The electrocardiograms showed a high incidence of abnormalities, and T wave and QT interval changes occurred in 32 cases. The most common T wave abnormality was a low, flat or inverted T wave in leads II, III and AVF. The U waves were often prominent in these leads. The QT interval was prolonged beyond the average normal in all but 2 patients. Extrasystoles were present in 26 patients. Three patients had multifocal premature ventricular beats, and one patient whose PVC's interrupted the preceding T wave died suddenly at the age of 30. Other reviews[8,9] have corroborated the high incidence of atypical chest pain and cardiac arrhythmia in patients with this syndrome. The electrocardiographic changes of inferior "ischemia" have been so common that some investigators have designated the complex of clinical features a specific "auscultatory-electrocardiographic" syndrome.[8,9,20] Numerous postexercise multifocal PVC's have been described, and propranolol alone or in combination with diphenylhydantoin has been effective in preventing their occurrence.[21]

The cause of these electrocardiographic abnormalities is not well defined. Coronary arteriography is usually completely normal.[11] Hyperventilation has been suggested as an etiologic mechanism,[7] though little evidence exists for this explanation. In some patients, an abnormally contracting area of left ventricular myocardium might compromise regional coronary circulation.[18] Pro-

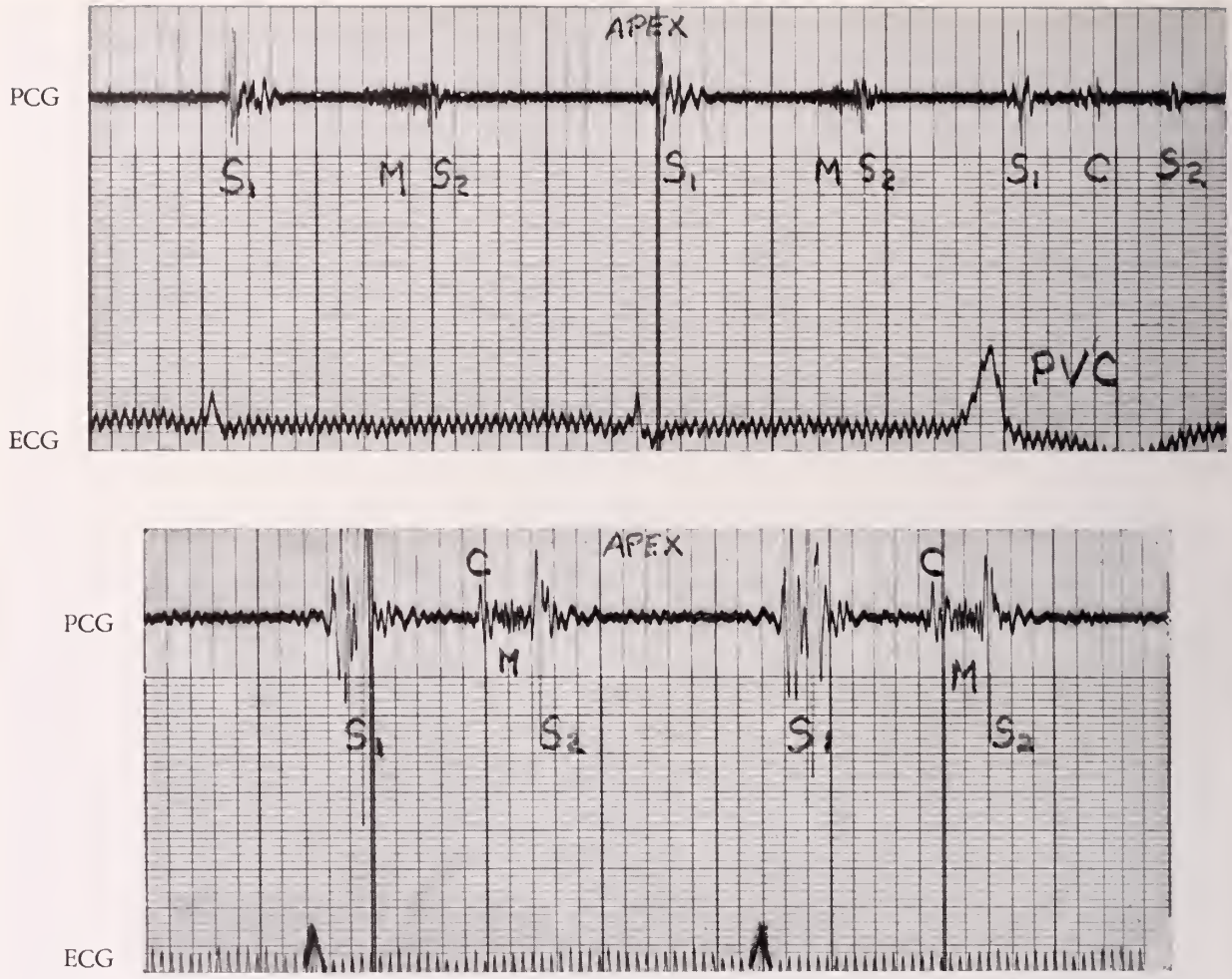


Fig. 5. Simultaneous phonocardiogram (PCG) and ECG from the cardiac apex showing the systolic click (C) and late systolic murmur (M). In the upper tracing, the click is more evident with a PVC. S_1 and S_2 are denotations for the first and second heart sounds. The lower tracing was taken at a higher gain.

longation of the QT interval and prominent U waves may be related to ischemia or other pathologic changes in the papillary muscle.

Our patient presented all of these clinical features, including atypical chest pain, mild dyspnea, a number of symptoms explainable only on a psychophysiologic basis, and classical electrocardiographic changes (Fig. 1), including frequent PVC's which increased in frequency and became multifocal following exercise. It is not clear why the diagnosis was not made at the time of left ventricular cineangiography, although the angiographic changes are sometimes quite subtle and on occasion completely absent.[8]

The episode of syncope in May 1970, preceded by a severe lancinating headache, was incompletely understood. Quinidine sulfate had been prescribed in a low dose four days previously, and a short period of quinidine-induced ventricular flutter or fibrillation could have produced the episode of unconsciousness and subsequent manifestations of clinical ischemia. Quinidine has been known to produce episodes of ventricular fibrillation, with immediate loss of consciousness and spontaneous termination, in patients without other manifestations of quinidine toxicity or high quinidine blood levels.[22] Typically, the attacks occur without premonitory symptoms, and a severe headache has not been described preceding "quinidine syncope." In our patient, who was known to have ventricular irritability, the combination of quinidine, hypokalemia, and hyperventilation following a severe menstrual headache may have caused an increase in ventricular irritability and a subsequent abortive episode of ventricular tachycardia or fibrillation. Such an attack could have reduced coronary perfusion for a sufficient length of time to produce secondary myocardial ischemia. The electrocardiogram (Fig. 3) during the ensuing hospitalization was compatible with a combination of quinidine effect, electrolyte imbalance, and hyperventilation.[23] Myocardial ischemia could not be excluded, particularly since the abnormal changes persisted for several months (Fig. 4).

Phonocardiography is an important means of diagnosing or validating the systolic click – late systolic murmur syndrome. In the patient described here, it was invaluable, for the systolic click was not easily heard by auscula-

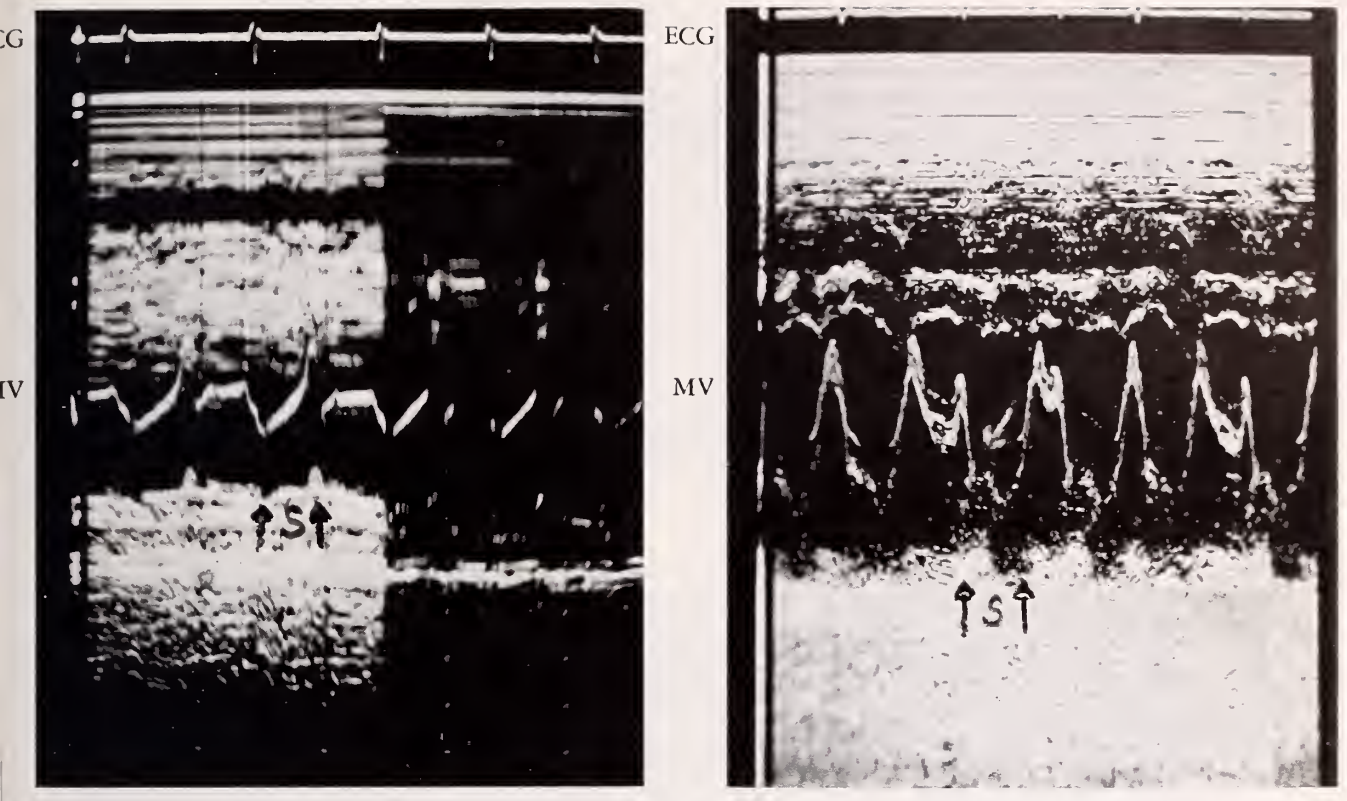


Fig. 6. Echocardiograms from a normal subject (WC) on the left and the patient (BN) on the right showing motion of the anterior mitral valve leaflet (MV). During systole (S), the normal valve shows an uninterrupted, gradual anterior motion. The patient's MV shows posterior displacement (white arrow) during systole. A vigorous diastolic excursion is also noted. The simultaneous ECG is recorded at the top. In both echo studies, an upward deflection indicates anterior motion and a downward deflection signifies posterior motion.

tion. Of interest was the fact that the click was much more clearly demonstrated by phonocardiography at the time of a premature ventricular beat (Figs. 5,7). This observation is at variance with previous reports[7,9] where the click was observed to decrease in intensity during extrasystoles. Phonocardiographic studies using postural variation,[8,24] pharmacologic techniques[7-9] and the Valsalva maneuver[8,9] have shown that hemodynamic alterations resulting in a decreased left ventricular end-diastolic volume cause the click and murmur to appear earlier in systole and the murmur to be longer. Sitting or standing will cause a reduction in venous return and a smaller end-diastolic volume, and the leaflets will be closer to a position of prolapse at end-diastole. Earlier prolapse with an early click and more prolonged mitral regurgitation will occur. Our patient was similar to those described by Fontana et al.[24] After standing, her murmur became much louder in intensity and longer in duration – a systolic "whoop." The squatting position, which causes an increase in venous return and a larger end-diastolic volume, produced a reversal of these auscultatory changes (Fig. 7). These observations underscore the point that the correct diagnosis may be missed unless ausculation is performed in different body position.

Ultrasound cardiography is a well-known technique for displaying mitral valve motion and has been helpful in diagnosing mitral stenosis. Recently, echocardiography has been utilized to characterize mitral valve motion in patients with the systolic click – late systolic murmur syndrome.[25,26] Normally during systolic ejection, anterior and posterior mitral leaflets fuse, and the echocardiogram shows gradual anterior motion of the mitral valve as the whole valve structure moves anteriorly (Fig. 6).

In the systolic click – late systolic murmur syndrome, the ultrasound tracing shows an abrupt posterior motion of the mitral valve echo in mid-systole, usually in a smooth semilunar pattern (Fig. 6). This abnormality has been demonstrated for one or both mitral leaflets, although the anterior leaflet is usually easier to identify by the ultrasound technique. In cases where both leaflets have been visualized,[26] the posterior leaflet has been displaced more posteriorly than the anterior leaflet, resulting in separation of the valve leaflets during middle and late systole. The abnormal displacement of the mitral valve echoes is felt to be the result of systolic prolapse into the left atrium. Our patient demonstrated a similar abnormality in the motion of her anterior mitral leaflet (Fig. 6). Thus in this case, echocardiography was a useful, direct, and noninvasive means of confirming late systolic prolapse of the mitral valve.

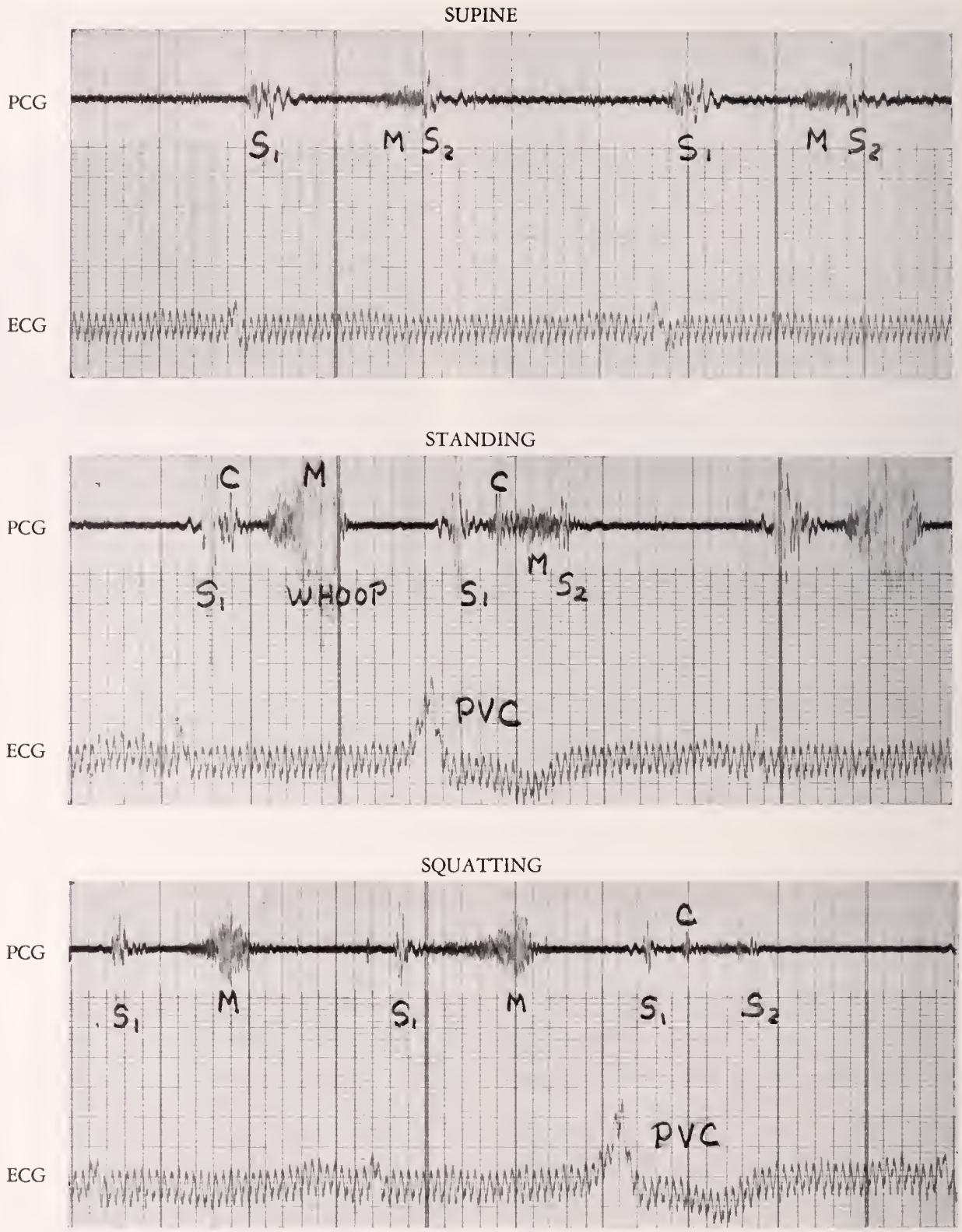


Fig. 7. Simultaneous ECG and PCG taken in the supine, standing and squatting positions. During standing, the systolic murmur (M) is accentuated into a whoop, and the click occurs earlier in systole. This is reversed somewhat by squatting. The click (C) is again more easily identified with a PVC. (Other abbreviations as in Figure 5)

Summary

A case report of a 45-year-old woman with the systolic click – late systolic murmur syndrome has been presented. The patient manifested many of the characteristic features of this syndrome, including auscultatory findings characteristically altered by postural variation, typical electrocardiographic ST – T wave variation, ventricular irritability controlled somewhat by propranolol, atypical chest pain, and a number of symptoms difficult to explain on a cardiovascular basis. She had one episode of syncope which may have been produced by ventricular flutter or fibrillation with spontaneous termination. The correct diagnosis was missed by cardiac catheterization but subsequently established by the use of phonocardiography and ultrasound cardiography, emphasizing the value of noninvasive techniques in diagnosing this syndrome.

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Annual Meeting Dates For Your 1972 Calendar . . .

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Middle Lobe Syndrome in Asthmatic Children

HENRY THACHER, M.D.* and ABRAHAM KAPLAN, M.D.**

Since 1948 when Graham, Buford, and Mayer[1] described 12 patients with compression of the middle lobe bronchus by hilar lymphadenopathy with resulting bronchial stenosis progressing to pulmonary infection, this clinical entity has been a familiar one in the literature.

These and other authors have pointed out that there is a direct relationship between atelectasis, pulmonary infection and hilar lymphadenopathy secondary to it, and still further compression of the right middle lobe bronchus. Brock[2] described the anatomical features of the middle lobe bronchus which predispose it to easy obstruction: namely, the small caliber, short length, and the acute angle at which the bronchus emerges from the right main bronchus.

Although this finding has been more common in adults than in children, Dees and Spock[3] in 1966 reported 30 cases of the syndrome – largely in atopic subjects – from the pediatric allergy clinics of Duke University Medical School. The majority of these patients challenged clinicians with refractory asthma. Cough, wheezing, and recurrent bouts of pneumonia were the outstanding presenting complaints. A high hematocrit was found in 25 out of the 30 in their group. This latter finding was felt to be due to a compensatory polycythemia secondary to A.V. shunting in the hypovolemic lung. In this group, pulmonary function studies were done in 12, showing decreased vital capacity and normal forced expiratory volume.

Roentgenographic findings have been stressed by many authors. Paulson[4] reported that with A.P. and lateral exposures, they were able to diagnose 24 of their 32 cases. Recurrent pneumonia involving the same area of the lung, atelectasis as seen on lateral projection and in the lordotic views, and blurring of the right cardiac border were the outstanding x-ray findings. Rubin and Rubin[5] stressed studies in the right lateral position at various depths (tomography) as useful in determining which segment of the lobe is involved.

This paper is a report of two pediatric patients with the R.M.L. syndrome seen at the Central Maine General Hospital between 1968-70.

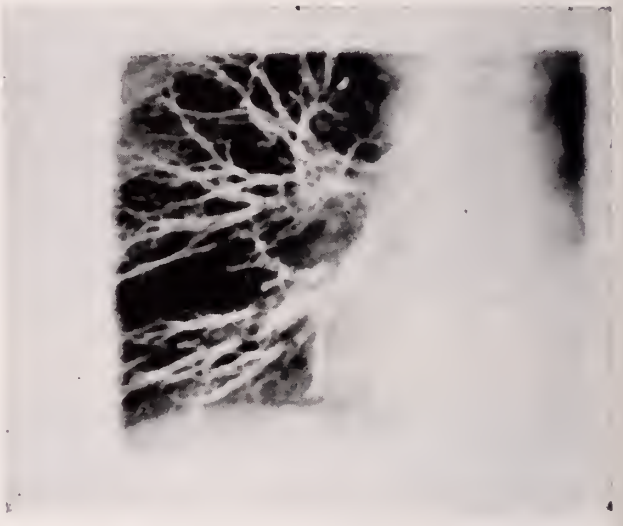


Fig. 1A



Fig. 1B

Fig. 1, Case 1. Bronchogram – Spot films (A and B) showing poor filling and depression of the right middle lobe bronchi and compensatory spreading of the upper lobe bronchi.

CASE REPORTS

Case 1: An 8-year-old boy was admitted April 29, 1969 for bronchoscopy. He had a long standing history of allergic disorders originating with atopic dermatitis at the age of 6 weeks. He was hospitalized for 5 weeks in 1961 with eczema. Asthma developed in 1962 – perennial in type – with exacerbation in the spring and fall months. Skin testing in 1968 revealed sensitivities to animal danders, molds, house dust, and ragweed, and he was started on hyposensitization treatment in April 1968. He responded poorly however, developing intractable asthma with pneumonia involving the left lower lobe in November 1968, and the right middle lobe in January 1969. Vigorous use of adrenergic drugs and intermittent steroid treatment were resorted to without marked improvement. Bronchography (Figs. 1A and B) revealed poor visualization of the middle lobe bronchus, and atelectasis of this lobe was suspected. On May 24, 1969, the patient was admitted for lobectomy. The right middle lobe was found to be partially atelectatic and there was

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a horseshoe configuration of indurated lymph nodes surrounding the middle lobe bronchus. Since this operation, he has been hospitalized once briefly for asthma (June 1969), but promptly responded to treatment. Skin tests at that time showed sensitivity to grass pollen, and this was added to his hyposensitization therapeutic regime. The patient has gained 15 pounds since operation. His school attendance is good and obligatory use of ephedrine has been avoided.

Case 2: A nine-year-old boy was admitted to St. Mary's General Hospital on September 4, 1970. The product of premature birth (4 lbs. 8 oz.), he did well in the postnatal period, receiving routine immunizations. Symptoms suggesting perennial allergic rhinitis were noted from age 5. In February 1968, he had pneumonia and otitis media, and thereafter, particularly in the year prior to operation, fatigability and susceptibility to frequent respiratory infection was noted. Chest pain was prominent intermittently in the 4 months prior to surgery.

The roentgenographic finding on admission was consolidation of the right middle lobe (Figs. 2A and B). The hematocrit was 43%, Hemoglobin 14.3, WBC 16,200; 1 eos, 75 segs, 22 lymph, 2 monos. VDRL negative, PPD negative, BUN 10 mgm%, Shwachman sweat plate 2+.

Because of the history of relapsing severe respiratory infection and delay in resolution of the pneumonia, surgical consultation was obtained. Bronchoscopy was advised and carried out on 9-16-70. Bronchographic studies showed complete obstruction of the right middle lobe bronchus (Figs. 3A and B). The bronchoscopic aspirate was negative for fungi and the cell block showed no abnormalities consistent with specific inflammation or malignancy. At operation, diffuse, patchy atelectasis on the surface of the middle lobe was noted, with marked peribronchial lymphadenopathy, consistent with the findings previously described in the right middle lobe syndrome. Since operation, he has gained 26 lbs., has had no further chest pain, and has had only one respiratory infection. Nasal congestion and intermittent rhinorrhea persist.

Discussion

Traditionally, the right middle lobe syndrome has been associated with atelectasis, pneumonitis and bronchiectasis of the middle lobe, secondary to peribronchial adenopathy and subsequent encroachment upon the bronchial lumen. The sequence is logical and the connected physiopathology had been well established. However, recently the same entity has been focused under an entirely different light. Attention has been drawn by pediatricians and pediatric allergists to the occurrence of an asthmatic-like condition in children with right middle lobe syndrome. The bronchial architecture of the R.M.L., as it has been stated in the introduction, seems to predispose it to easy obstruction: the small caliber, the length and the acute angle at which the branch emerges from the right main bronchus. However, in the two cases presented, the actual lumen of the draining bronchus was not found to be totally occluded at the time of surgery, in spite of the following radiological and pathological findings: (1) The preoperative bronchograms revealed no vizualization or incomplete demonstration of the right middle lobe bronchial pattern, (2) The middle lobes were found atelectatic and difficult or impossible to inflate at the time of surgery, and (3) The draining bronchus was found to be surrounded by enlarged lymph nodes. It would seem that associated with the mechanical factor of blocking lymphadenopathy and the predisposing anatomical arrangement of the bronchial architecture,

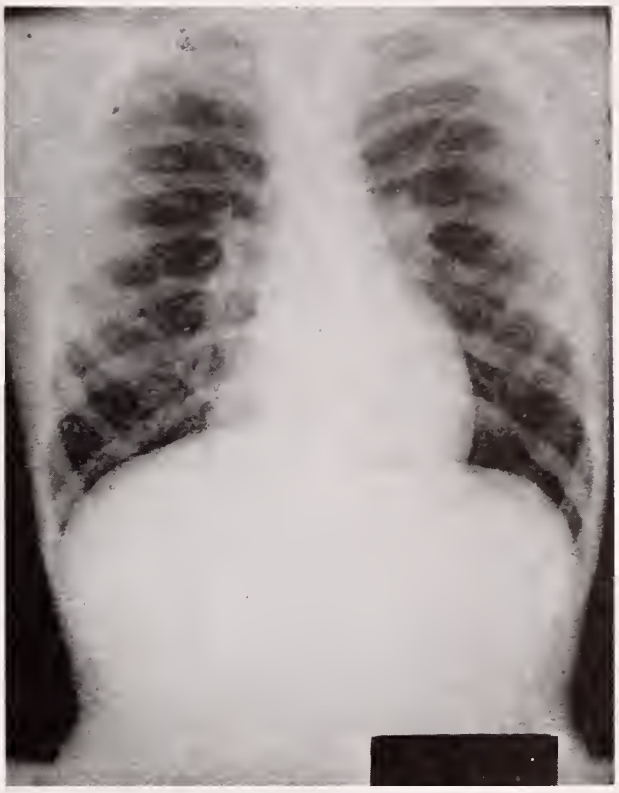


Fig. 2A



Fig. 2B

Fig. 2, Case 2. P.A. (A) and lateral (B) chest showing atelectasis of right middle lobe on the lateral projection.



Fig. 3A

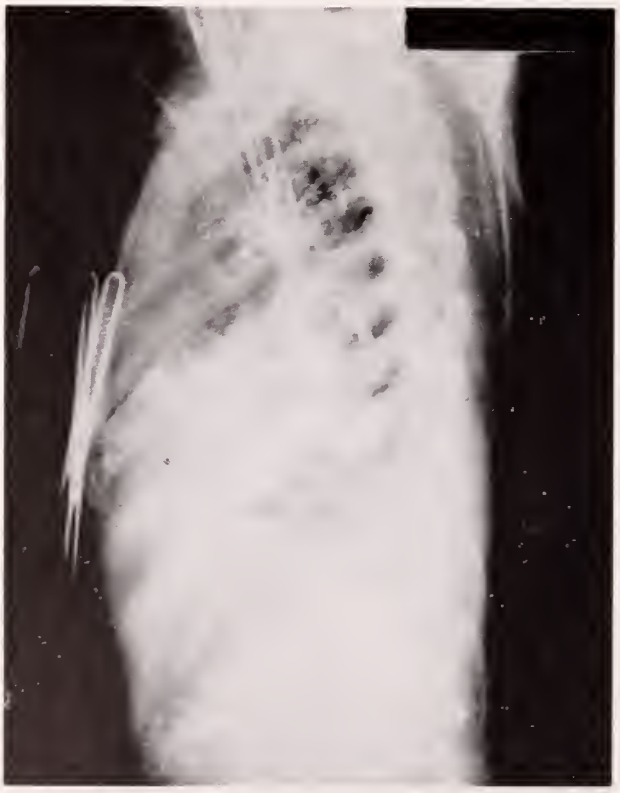


Fig. 3B

Fig. 3, Case 2. Bronchogram (A and B) with very poor right middle lobe bronchus filling. Considerable alveolar filling resulting in poor visualization.

there are other elements not completely understood or fully investigated.

Leeks has drawn attention to the fact that acute atelectasis occurs in status asthmaticus, postulating that this may be related to changes in surfactant produced by abnormal pH and oxygen tension. Dees and Spock[3] advanced the possibility of the existence of a genetic factor based on firstly, the preponderance of girls in their study of a predominantly allergic group where boys were expected to comprise the majority, and secondly, the presence of dysgammaglobulinemia in 3 patients.

In the light of all the clinical evidence gathered up to now regarding the physiopathology of R.M.L. syndrome in asthmatic children, it would seem prudent not to hastily indict any single factor and rather attribute the development of this disease entity to an association of mechanical, infectious and genetic factors.

Regarding the diagnosis and treatment, we have found the problems also encountered by others: the delay in diagnosis due to lack of specificity of symptoms; recurrent pneumonia in the same area a highly consistent finding. In addition to frank and unmistakable atelectasis detected in lateral projections, a blurred right cardiac border and loss of volume of the right middle lobe are the most reliable diagnostic features. Needless to say, the bronchogram is the single most valuable diagnostic aid, and performance and repetition of the procedure in patients whose course and findings point to disease of the R.M.L. as the cause of "pseudoasthma" is justified. Bronchoscopy, although less valuable, is mandatory to rule out the presence of foreign body, mucus plugs or endobronchial disease.

In conclusion, the right middle lobe syndrome is not uncommon in children and, is in fact, frequently seen in allergic pediatric patients. Simple diagnostic tools will suffice to determine the presence of this entity and early surgery ensures excellent recovery.

Summary

Two cases involving children under 10 are described with disease of the right middle lobe. The patients presented with the problem of recurrent pneumonia and in the case of (J.W.) with refractory asthma, roentgenographic and operative findings are detailed. In both cases, partial atelectasis and chronic malfunctioning of the lobe was found and partial to complete obstruction of the right middle lobe bronchus. The postoperative progress to date is discussed.

In patients with atopic background who are not responding to conventional management, vigorous efforts should be made to exclude irreversible organic disease of the lung that serves as a nidus of infection and triggers asthma. Patients presenting with recurrent acute respiratory infections are a common problem in this area of New England. Serological studies are frequently helpful to exclude immunological problems, particularly if methods are used which highlight the fractions of gamma

Continued on Page 50



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Precautions: To avoid oversedation, use lowest effective dose, particularly in elderly and/or debilitated patients. Consider possibility of suicide attempts; dispense least amount of drug feasible at any one time. To avoid excess accumulation, use caution in patients with compromised liver or kidney function. Meprobamate may precipitate seizures in epileptics.

Adverse Reactions: *Central Nervous System:* Drowsiness, ataxia, dizziness, slurred speech, headache, vertigo, weakness, paresthesias, impairment of visual accommodation, euphoria, overstimulation, paradoxical excitement, fast EEG activity. *Gastrointestinal:* Nausea, vomiting, diarrhea. *Cardiovascular:* Palpitations, tachycardia, various forms of arrhythmia, transient ECG changes, syncope; also, hypotensive crises (including one fatal case). *Allergic or Idiosyncratic:* Usually after 1-4 doses. Milder reactions: itchy, urticarial, or erythematous maculopapular rash (generalized or confined to groin). Others: leukopenia, acute nonthrombocytopenic purpura, petechiae, ecchymoses, eosinophilia, peripheral edema, adenopathy, fever, fixed drug eruption with cross reaction to carisoprodol, and cross sensitivity between meprobamate/mebutamate and meprobamate/carbromal. More severe, rare hypersensitivity: hyperpyrexia, chills, angioneurotic edema, bronchospasm, oliguria, anuria, anaphylaxis, erythema multiforme, exfoliative dermatitis, stomatitis, proctitis, Stevens-Johnson syndrome; bullous dermatitis (one fatal case after meprobamate plus prednisolone). Stop drug, treat symptomatically (e.g., possible use of epinephrine, antihistamines, and in severe cases corticosteroids). *Hematologic:* Agranulocytosis and aplastic anemia (rarely fatal), but no causal relationship established. Rarely, thrombocytopenic purpura. *Other:* Exacerbation of porphyric symptoms.

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globulin quantitatively. Not a few patients benefit from careful scrutiny of the lung to exclude chronic organic disease.

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Charter Flight To Madrid For M.M.A. Members

Arrangements have been made for the members of the Maine Medical Association to participate in a charter flight to Madrid, departing from the Bangor International Airport on May 5th and returning to Bangor on May 13th.

The following is the proposed itinerary:

May 5, 1972 — Departure via Overseas National Airways.

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The Importance of Open Lung Biopsy in Obscure Pulmonary Lesions

Abraham Kaplan, M.D.* and Rudolph Haas, M.D.**

Diffuse, bilateral pulmonary lesions with scarce respiratory or systemic symptoms are not infrequently found on routine chest x-ray examinations and certainly constitute a challenging diagnostic problem. In order to establish a concrete histological pattern to clarify these obscure nosological entities, Klassen,[1] in 1949, reported a simple technique of open lung biopsy. Theodos,[2] in 1955, and Effler,[3] in the same year, also reported results of lung biopsies using somewhat similar techniques.

The open lung biopsy offers a quick and efficient method of establishing a diagnosis and in many cases its use can avoid prolonged and costly nosocomial confinement and great mental anguish over a disease of unknown etiology and prognosis. All the patients presented in this paper were up and about on the day of surgery and, ready for discharge in 48 hours, at which time a histological diagnosis was already made and treatment either planned or instituted. Also, pulmonary biopsy is of definite value and should be used in confirming or clarifying the etiology of a pulmonary infiltration in compensable disease in patients with industrial exposure. The incontrovertible evidence of the histological and sometimes spectrophotometric analysis should help the patient to avoid the quagmire of legal entanglements.

From the preceding introductory remarks, it follows that indications for biopsy of the lung in diffuse, bilateral disease fall into two major categories: (1) When all available diagnostic studies have been employed with negative results and the diagnosis still remains obscure. (2) When occupational inhalational disease is suspected and a diagnosis is important from a therapeutic and/or medicolegal standpoint. Contraindications are mainly associated with severe coexisting disease which makes the elucidation of the disease entity merely an academic exercise.

Surgical Technique

Either general or local anesthesia may be used according to the general condition of the patient and his psychological makeup; should the latter be employed, a tightly fitting mask is used to deliver oxygen and to maintain the lung expanded. Needless to say, the technique of positive pressure breathing should be carefully explained to the patient before surgery.

Although the site selected for biopsy depends upon the location of the disease roentgenologically, the tissue specimen is usually taken from the inferior margin of the upper lobe. The incision is made over the anterior aspect of either the fourth or the fifth interspace, beginning at a point 5 cm from the midline and extending laterally approximately 8 cm.

A submammary incision is employed in women and the breast is retracted superiorly to gain access to the desired interspace. The fibers of the pectoralis major muscle are separated and the intercostal space exposed. The pleural space is entered by dividing the intercostal muscles midway between the ribs, taking care to avoid injury to the internal mammary vessels. When the procedure is done under local anesthesia and before the pleura is incised, a tightly fitting face mask is applied and oxygen administered under positive pressure until the pleura is again closed. We avoid grasping the lung tissue with Duval clamps; instead, when the site for the biopsy has been selected, two traction sutures of 2-0 chromic catgut are placed at each end of the site considered for biopsy, and the lung is gently delivered through the wound. The tissue is excised by cutting small segments at a time and immediately closing the raw surface with a continuous interlocking suture of 00 chromic catgut. No clamps are ever used on either the remaining or the excised lung tissue. An airtight closure should be obtained and additional interrupted horizontal mattress sutures might be required. The traction sutures are then cut and the lung is allowed to retract into the chest cavity. A #16-F rubber catheter is introduced in the chest through a small stab wound made in the intercostal space above or below the thoracotomy site. The catheter comes out of the chest through the primary skin incision on order to help avoid cosmetic objections to the procedure, particularly from female patients. No attempt is made to close the intercostal muscles. The pectoralis muscle is reapproximated and the subcutaneous tissue and skin are closed. All air and fluid are then aspirated from the pleural space and the catheter removed. No dressing is applied and the patient is allowed to be ambulatory the same night. Microscopic, bacteriologic and chemical studies of the biopsy specimen should be carried out in all cases. Microincineration and spectrophotometry may be helpful when chemicals are suspected as the etiologic agents.

Report of Cases

Case #1: Mrs. B. L., age 29. This mother of two had never been seriously ill in her life. She was a fairly heavy smoker. In April of 1971 she developed "flu" with fever, chest pain, cough and expectoration, and lost weight steadily from the onset of her symptoms. She was seen in August of 1971 at CMG Hos-

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** Chief of the Department of Medicine, Central Maine General Hospital, Lewiston, Maine 04240.



Fig. 1, Case #1. Diffuse, bilateral reticular pattern with interstitial nodular infiltrates. Both hilar areas are prominent and elevated.

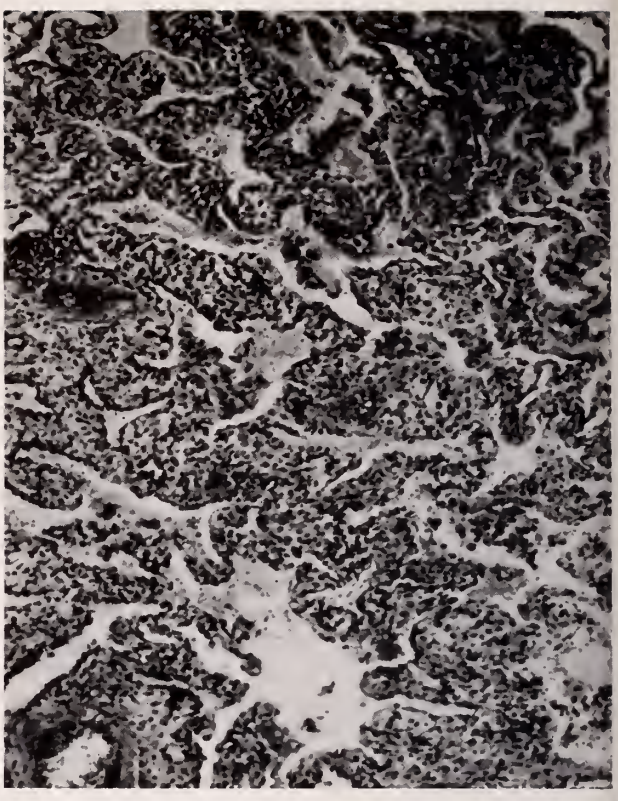


Fig. 2, Case #1. Lung biopsy showing alveolar walls thickened by edema and chronic inflammatory infiltrate. Hyperplasia and sloughing of alveolar cells. DIAGNOSIS: Chronic interstitial pneumonitis.

pital, at which time a chest x-ray revealed diffuse, bilateral patchy infiltrate. Complete workup was negative except for the roentgenological findings in the chest and an electrophoretic pattern suggestive of hypogammaglobulinemia. A lung biopsy was obtained on September 9, 1971, through a left thoracotomy. The pathological diagnosis was subacute interstitial pneumonitis with nodular interstitial fibrosis. The patient was placed on 40 mg. of prednisone every other day. She has markedly improved, her cough has subsided, and she no longer complains of dyspnea. Follow up chest x-rays show marked improvement.

Case #2: Mrs. C. W. G., age 46. This patient was first seen in 1966 because of increasing dyspnea and cough. She was a heavy smoker. A chest x-ray taken at that time showed a fine reticular fibrosis. A second x-ray taken in 1967 showed a similar pattern. The patient reappeared in April of 1971, when she was hospitalized because of chest pain and dyspnea. She was digitalized and given diuretics, but her improvement was slow and incomplete. She returned in September of 1971, because of an acute exacerbation of her respiratory difficulty with hemoptysis and marked weight loss. A week following her admission the patient underwent a right heart catheterization and a pulmonary angiogram, followed a few days later by biopsy of the left lung. These studies revealed a high pulmonary artery pressure with a mean of 52 mm of Hg, and rather severe arterial hypoxemia: PO2 of 42.9 mm of Hg and 02 sat. of 80.5%. The lung biopsy showed chronic interstitial pneumonitis with diffuse interstitial fibrosis. The patient was placed on 40 mg of prednisone daily and her condition improved so rapidly that she was discharged four days later.

Case #3: L. C., a 39-year-old male. He was admitted on August 23, 1971, for evaluation of a bilateral diffuse pulmonary infiltrate. This was discovered on routine chest film following a positive tuberculin test during a TB prophylaxis program. The patient had worked at a foundry, doing chipping and grinding of minerals, for 18 years. A complete workup was negative except for his chest x-ray which showed marked bilateral nodular infiltrate. Ar open lung biopsy was obtained and the pathological diagnosis was siderosilicosis.

Case #4: F. M., age 65. The patient was admitted on September 13, 1971. Since April of 1971, the patient had been afflicted with cough, and raising blood tinged sputum. A chest x-ray taken in July 1971, showed decreased radiance over the lower half of the left lung which was interpreted as pleural effusion. A chest x-ray taken on admission showed a marked pleural thickening in the left lower chest. A fibrocalcific density was also noted in the right infraclavicular area, unchanged from previous studies and undoubtedly secondary to an old healed pulmonary tuberculosis for which the patient was treated from 1931 to 1933 at The Western Maine Sanatorium. A presumptive diagnosis of mesothelioma of the left chest was made and the patient had an open biopsy. The pathological report was adenocarcinoma of the lung extending into the pleura.

Comment

The detailed history obtained from a patient with a diffuse, pulmonary lesion may reveal that the infiltration is due to occupational exposure to dust, or contact with a known pathogen, or the presence of a systemic or neoplastic disease. However, occasionally the history may be



Fig. 3, Case #2. Diffuse, bilateral reticular pattern with considerable degree of honeycombing. Diminished aeration of both bases. Both hilar areas are prominent and the pulmonary cone is enlarged.

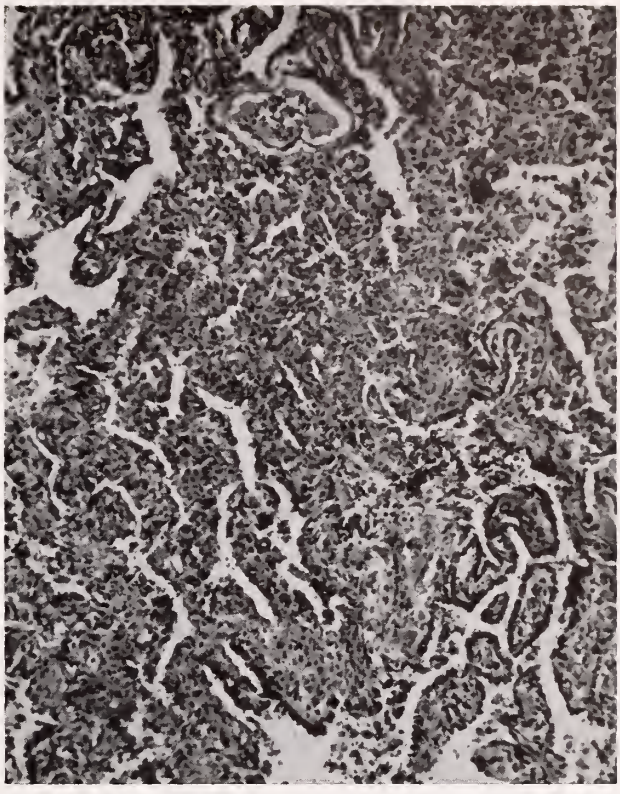


Fig. 4, Case #2. Lung biopsy showing same changes as in Fig. 2, Case #1. DIAGNOSIS: Chronic interstitial pneumonitis.

misleading, and frequently symptoms and physical findings contribute little to the clarification of the problem, inasmuch as they oftentimes only indicate the extent of the lung involvement rather than the nature of the infiltrate.

Frequently, a clinical diagnosis may be established by nonradical measures: skin tests, bacteriological studies, and cytological examinations of sputum and bronchial washings. Only when these measures have been exhausted and have failed to provide the answer to the diagnostic problem should a lung biopsy be performed. The fact that a specific etiology was established in approximately 70% of the cases that have been reported in the literature would attest to the importance and accuracy of this method.

Needle biopsy, known for many years, is a different modality for obtaining lung tissue. The obvious danger and complications of a blind procedure, added to the lack of absolute precision, and the possibility of implantation of the disease into the chest wall, have contributed to the limited acceptance and very low ranking of needle biopsy on the present list of our diagnostic armamentarium.

Traditionally, the patient with bilateral diffuse pulmonary disease is considered a diagnostic problem best handled by the internist. However, the cooperation of the surgeon should be engaged in selected instances and a

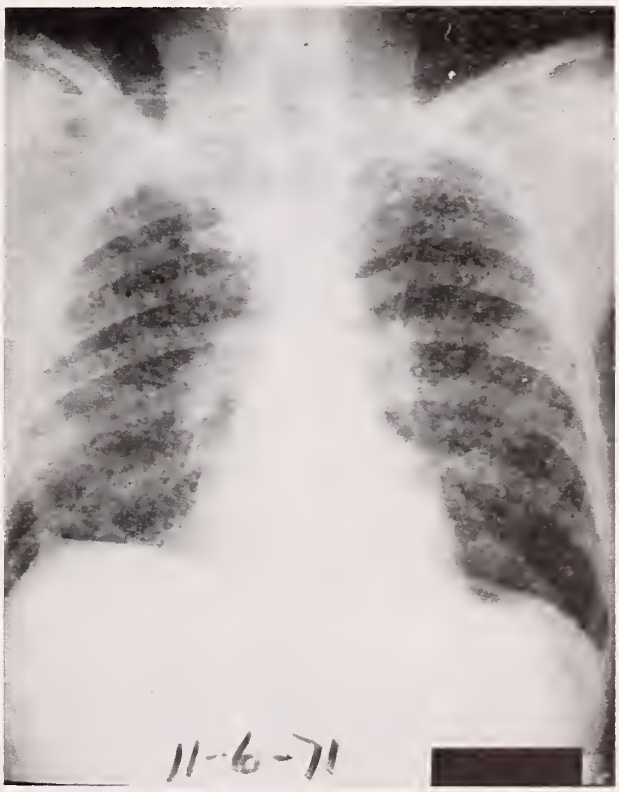


Fig. 5, Case #3. Bilateral diffuse nodular infiltration. Increased density R. L. L. Enlargement of both hilar areas.

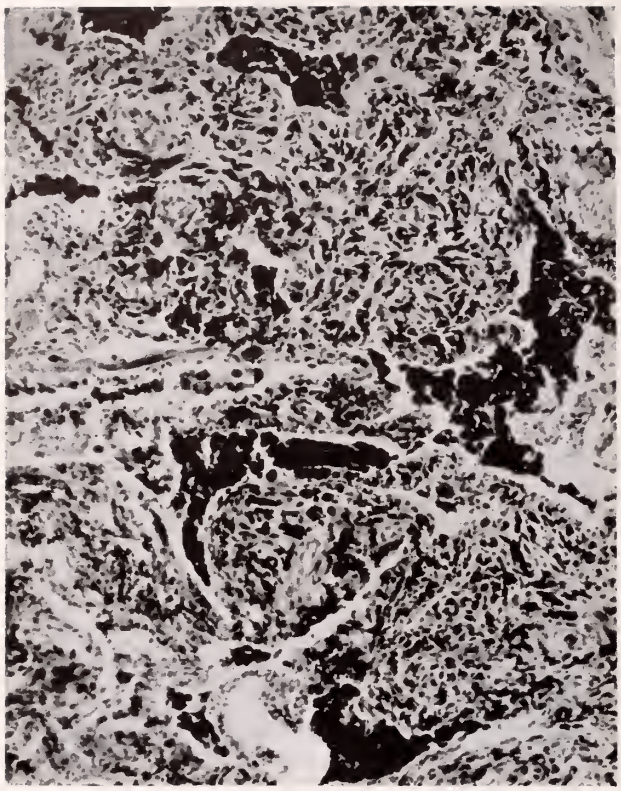


Fig. 6, Case #3. Lung biopsy showing marked fibrotic thickening of alveolar walls. Iron-containing pigment in macrophages conspicuous both in alveolar walls and spaces. Polarized light reveals tiny colorless crystals. Minimal inflammation. DIAGNOSIS: Siderosilicosis.

lung biopsy obtained in an attempt to choose a direct, rapid, fairly accurate and safe approach to solve the problem. Even though the histologic appearance of the tissue specimen obtained may be compatible with more than one disease entity, it may be ventured that further pathological experience and knowledge will permit clearer differentiation of the more obscure pulmonary problems.

Summary

Four cases of open pulmonary biopsy in obscure respiratory problems are presented. The procedure was well tolerated and produced little discomfort. No complication occurred that could be ascribed to the procedure. Attention is drawn to and emphasis is again placed on a quick and efficient method of establishing a diagnosis in obscure pulmonary pathological entities, with therapeutic and medicolegal implications. The indications are presented, a simple surgical procedure described, and four cases reviewed.

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Fig. 7, Case #4. Pleural thickening is present in the left lower chest, laterally and anteriorly, without evidence of pleural effusion. A fibrocalcific nodular is noted in the right infraclavicular area, unchanged from previous studies.

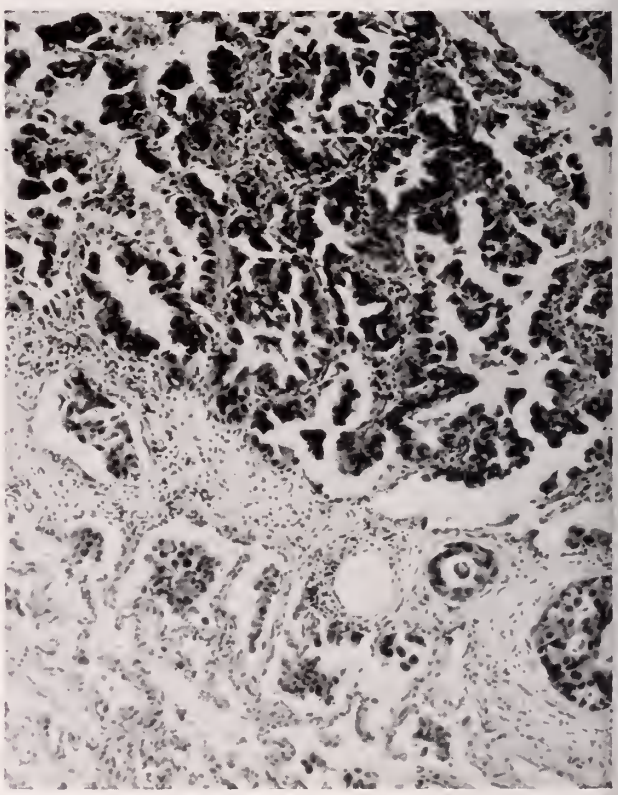


Fig. 8, Case #4. Lung biopsy showing alveoli relined by malignant epithelial cells probably derived from terminal air sacs. DIAGNOSIS: Alveolar cell carcinoma.

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From the Secretary's Notebook

1971 Fall Meeting of the M.M.A. House of Delegates

The Fall Meeting of the M.M.A. House of Delegates was held at St. Joseph Hospital in Bangor, Maine on Sunday, December 5, 1971 with an attendance of 50 delegates and alternates and sixteen guests. Linus J. Stitham, M.D., President of the M.M.A., called the meeting to order, and George W. Bostwick, M.D., Speaker of the House, presided.

1. Dr. Bostwick announced that **committee reports** will be accepted or rejected as a whole; if the report contains anything that requires action, it should be presented as a resolution.

2. **Medical Education in Maine, Manu Chatterjee, M.D.** – Dr. Chatterjee emphasized that it is important for the Maine Medical Association to be very much involved in the medical education picture and noted a worthwhile and interesting report by John S. Millis, Ph.D. on "A Rational Public Policy for Medical Education and its Financing." He indicated that our needs are problems and they can be divided into three categories: a) manpower, b) availability of health services, and c) continuing education. Dr. Chatterjee elaborated on these three problems as they pertain to Maine.

He then discussed the alternatives to a medical school, stating that all these programs are successful, but they do not address themselves to the whole problem. He explained what a week of school would include for a student in the proposed medical college. As to the availability of health science personnel, Dr. Chatterjee told the delegates that there are 130 Ph.D.'s in related basic sciences in Maine and that interest is generally high. Relative to space availability, it was pointed out that some space is available in Maine colleges, and 75% of the hospitals polled indicated they have space. The cost of this program is estimated to be $10.6 thousand per student per year (this figure based on a 60-student class – with 50% of this being financed by the government).

3. **Progress Report: Chancellor's Advisory Committee on Medical Education, Thornton W. Merriam, Jr., M.D.** – Dr. Merriam first noted that this committee was formed by the Board of Trustees of the University of Maine to help solve Maine's health manpower problem. The committee is made up of 19 physicians with Dr. Dean Fisher as chairman. During the last legislative session, $75,000 was appropriated for exploring the alternatives for meeting the need for doctors. This effort was directed mainly to a medical school. They were in agreement that physician manpower needs can best be achieved by a medical school; alternatives were also reviewed and discussed by the committee, but they felt definitely that though all programs had merit, none met the manpower needs as would a medical school. He also noted that the committee's stand on the medical school proposal is not unanimously in favor and no definitive action on it has been taken as yet by the committee. A final committee decision will be reached by December 20th and be sent to the Chancellor.

There followed questions and answers on the proposed medical school. In regard to the basic science being offered in this program, it was pointed out by one physician that there appeared a great change from the last report. Dr. Ohler stated that he thinks the change re core of basic science is new – and good. He has noticed a healthy evolution attributed to a lot of very serious study by the RMP staff.

Dr. Stitham explained that the Maine Medical Center has already drawn up a position paper re the medical school for Maine and that it will probably be released after December 20th. In the event it is printed, the Maine Medical Association should have a reply. Following more discussion, the following resolution was made and passed (with 2 opposing): *"The House enthusiastically supports the current efforts to achieve a medical school in the State of Maine."*

Dr. Wood commented on the improved changes made in the proposed medical school program and suggested that it might be a good idea to have two or three physicians from Maine go to medical schools for site visits – let them sit down with the students, see their attitudes and report back to the House at its next meeting. This suggestion was met with favor.

4. **Mr. Roy Ettlinger, Superintendent, Augusta State Hospital** – With the aid of the blackboard, Mr. Ettlinger reviewed the new admissions policy being used at the Augusta State Hospital. He stated that there has been a reorganization at the hospital. Mr. Ettlinger explained that a copy of the admission policy rules will be sent to each physician and hospital in the State. One physician expressed the concern that the new admission policy leaves the decision of admitting up to the local mental health centers, rather than to the physician.

Mr. Ettlinger expressed the hope that the new policy would become effective before the end of December and said he is willing to work together with a committee to solve problems connected with it.

5. **Miss June Heilman of the Student American**

Medical Association – Miss Heilman briefly described the MECO-SAMA (Medical Education and Community Orientation) Project that she hopes will be initiated in Maine. This program involves sending medical students to a hospital for the summer. Application forms are available from the Maine Hospital Association and should be completed and returned to Maine's Regional Medical Program.

6. **Area Health Education Center, Robert L. Ohler, M.D.** – Dr. Ohler briefly explained that in 10/70, the Carnegie Commission issued a report addressing itself to policies for medical and dental education. The AHEC concept is defined as a mechanism for connecting the educational process with the delivery of health service, to include development of new manpower, methods for educating additional manpower and the manner in which this manpower should be utilized. Dr. Ohler explained that the VA on the national level has money available for planning efforts; these funds will be used for the salary of a coordinator, a secretary and travel expenses. Regarding the VA's function in the AHEC effort, Dr. Ohler stated that the VA is a facilitator only and has planning money available. He also mentioned that the reason this idea is brought up now is because of the availability of the money and the opportunity given.

A delegate expressed the opinion that the planning agencies in his area haven't contributed much and asked if there wasn't enough planning going on now. Another delegate, Dr. Van Pelt, asked that the record show that he was tired of "planning" and hoped money could be used for something else.

7. *Standing Committee Reports:*

a) **Allied Health Professions** – Dr. William MacVane, Chairman, gave a concise report of his committee's actions, stating that they had had two meetings since the committee's inception in June 1971. Their committee approved the proposed Nurse-Midwifery Program at the Maine Medical Center, which will be reviewed after six months in operation. Dr. MacVane welcomed suggestions and ideas for his committee from any physician.

b) **Professional Liability** – Dr. Thomas Martin, Sr., Chairman, explained that this committee was formerly the Medical Advisory Committee. At their meeting in the fall, the format of future committee meetings was discussed (physician to be present with his records, insurance representative to be present, etc.) The question of keeping minutes of these meetings was also discussed, and it was decided this would be checked out with a lawyer. Dr. Martin also remarked that Mr. Harrison Richardson was hired as M.M.A. legislative counsel, but the Association was without legal counsel at the moment.

c) **Ethics and Discipline** – In addition to the written report submitted by the chairman, Dr. John Fenger, committee member Dr. Van Pelt asked for advice on a problem. The committee received correspondence relative to fees for MEDEXs. He understands that their charge is the same as the physician's and wondered as to the ethical nature of this. Dr. Bostwick said that this matter would be referred to the Committee on Health Care Financing.

d) **Hospital Association Liaison** – In addition to the chairman's written report, a committee member stated that there is no liaison whatsoever; it will be established and the committee will handle any problems.

e) **Scientific** – Dr. Bradley Brownlow, chairman, reported that the committee has started planning and they hope to have a speaker on acupuncture.

f) **Peer Review** – The Committee has entered into talks with carriers who are eager and have indicated they will abide by the opinion of the Peer Review Committee, reported Dr. Euclid Hanbury. Unless peer review has wholehearted approval, it is not going to be successful. The State Committee needs to have specific information from the county societies. The third-party payers won't enter into agreements unless they know there is a strong structure. Dr. Hanbury explained that the State Committee has elected to meet on the last Friday of each month and hopes the county committees will meet during the first or second week of the month. He also announced that all Peer Review committee chairmen will be invited to a meeting in the near future.

Dr. Hanbury also mentioned that the Peer Review Committee is responsible to the Executive Committee, and any contract the third parties made would be with the M.M.A. and not the Peer Review Committee.

Dr. Amrein made a motion that the request for information for the Peer Review Committee: "1. Name and address of chairman; 2. Membership (a. names, b. term of office and whether staggered, c. elected or appointed), and 3. anticipated times of meetings" be taken back to the county societies for action at their next meeting. There was no opposition and the motion was passed.

PATRICIA A. BERGERON
Secretary-Treasurer, M.M.A.

Blue Cross HMO Policy

The Blue Cross Assn. Board of Governors has adopted a new policy on Health Maintenance Organizations. The statement pledges Blue Cross assistance in HMO development and gives guidelines for such assistance.

Although the basic HMO concepts still are under development and will be subject to interpretation for a long time, the policy says that "Blue Cross supports the HMO concept as a promising alternative form for delivery of health services, in much the same vein as it has previously supported and been actively involved with development of prepaid group practice programs."

The statement points out that Blue Cross already has helped establish new prepaid group practice plans, providing them with "critical access" to large consumer markets. This is done by offering dual choice between group practice benefits and the benefits offered through traditional insurance and delivery systems. "In a similar manner, Blue Cross will promote the growth of HMOs by stimulating their expansion through the marketing mechanism and by establishing new programs in which Plans themselves will operate HMOs," says the policy. As further support, Blue Cross will back "the removal of artificial restrictions, such as anti-group practice, anti-corporate practice of medicine, and certain other licensure laws."

Noting that HMOs will be expensive to launch, the policy says that substantial federal grants and loans will be needed. Moreover, an approach that builds upon existing provider resources will be necessary in many areas to achieve optimum development in the face of limited capital and start-up funds.

Development Guides

When assisting HMO development, Blue Cross will be guided by the following points:

- "An HMO should be required to provide and make accessible to its enrollees full comprehensive care (beyond the connotation of pending legislation) with strong emphasis on primary care and health education. It should use its potential to influence social and cultural forces which impact on health."
- "HMO development should fully utilize consumer involvement in the planning and organization of delivery of services."
- "HMOs should be within the purview of planning agencies to prevent the creation of duplicate capacity and to ensure that community, program and facility needs are best served. A variety of organizational forms and methods of governance should develop. . . ."
- "Evaluation should be an inherent part of every HMO. At this stage of preliminary development, divergent systems are presented with the unique opportunity to establish a fact and data base that will permit careful and realistic assessment of the effect of such factors as changed manpower usage, alternative payment, reimbursement, and delivery methods. This opportunity should not be lost in a shortsighted effort at hasty implementation. The efficacy of the HMO option has yet to be systematically analyzed and correlated with performance criteria; however, comparison and results can only be derived from systematic analysis of functioning systems. Evaluation and development must occur simultaneously over time."
- "The HMO should be required to utilize a mechanism for evaluation of institutional utilization and (be required) to provide a mechanism for internal peer review."
- "Any provider reimbursement methods adopted by the HMO should promote some provider risk sharing. Physicians and providers — through methods such as prepaid group practice, capitation payments, and prospective reimbursement — should in some way share responsibility for HMO efforts to provide for greater efficiency of patient care. . . ."
- "The HMO can help to meet the acute need which exists in many underfinanced and medically needy poor and rural areas. Emphasis should be placed on providing an effective mechanism for improving access to its services for residents in such areas and for other underserviced population segments."
- "The HMO should provide for open enrollment periods at least annually."
- "The HMO should provide a mechanism for out-of-area coverage, emergency services and referral services and should attempt to minimize as much as possible the need for cash indemnity in these areas."

The statement concludes by saying: "There is no magic inherent in HMOs. Solutions to cost and access problems are to be found in better organization and management, and real options. Even with appreciable success, the majority of care in the foreseeable future is likely to be rendered in traditional settings. The efficacy of the HMO will hinge upon its ability to promote a variety of alternatives without confining change to financing alone and without allowing flexibility of organization to foster the illusion of change while the delivery system continues to serve itself in traditional ways."

Necrologies

Lester Adams, M.D.

1884-1971

Dr. Lester Adams, 87, of Thomaston, Maine, former superintendent of the Western Maine Sanatorium at Greenwood Mountain, died at his home on December 14, after a long illness.

He was born in Bangor, Maine on November 10, 1884, son of Charles H. and Sarah L. Adams. Dr. Adams was graduated from Bangor High School in 1903, attended the U.S. Naval Academy two years and was graduated from Bowdoin College in 1907. In 1911, Dr. Adams received his medical degree from Johns Hopkins University School of Medicine. He interned at the St. Francis Hospital in Pittsburgh and served a residency at the Baltimore City Hospital.

Dr. Adams practiced pathology at the Eastern Maine General Hospital from 1915 to 1917 when he was commissioned a Captain in the Medical Reserve Corps, U.S. Army, serving in World War I. He received his tuberculosis training at the Army school for tuberculosis, and was a resident at the Trudeau Sanatorium in New York for two years. In 1923, Dr. Adams was appointed superintendent at the Western Maine Sanatorium where he served until the time of his retirement in 1955.

Dr. Adams was an honorary member of the Oxford County Medical Society and the Maine Medical Association, receiving a 50-year pin in 1961, a 55-year pin in 1966 and a 60-year pin in 1971. He was also a member of the American Medical Association, the American Thoracic Society, the Maine Tuberculosis and Health Association, the American Heart Association, the Maine Heart Association and the Maine State Employees Association.

He was an incorporator of the Knox County General Hospital and an honorary staff member of the Central Maine General Hospital in Lewiston. Since coming to Thomaston, he held the office of selectman and was on the Thomaston Library Board.

Surviving are his widow, the former Violet Mills of Thomaston; two daughters, Mrs. Delbert Jackson of Wellesley, Massachusetts and Mrs. Robert Phillips of Framingham, Massachusetts; and four grandchildren.

Warren E. Kershner, M.D.

1880-1971

Dr. Warren E. Kershner, 91, prominent ophthalmologist and otolaryngologist of Bath, Maine, and a Past President of the Maine Medical Association, died at the Bath Memorial Hospital on December 30.

He was born at Bigelow Plantation on May 18, 1880, son of Thomas J. and Ella Ranger Kershner. As a small boy, he moved to Kingfield and was graduated from Kingfield High School and from Coburn Classical Institute. In 1903, Dr. Kershner received his medical degree from Maryland Medical College.

Dr. Kershner served five years in the U.S. Army Medical Corps, three of them in the Philippines prior to 1915. During World War I, he served as a Major with the Army Medical Corps at Army camps in Ohio and North Carolina, becoming a Lt. Colonel in the Army Medical Corps Reserves. He located in Bath in 1914 where he practiced until his retirement in 1953.

He was an honorary member of the Lincoln-Sagadahoc County Medical Society and the Maine Medical Association, receiving a 50-year pin in 1953, a 55-year pin in 1958, a 60-year pin in 1963 and a 65-year pin in 1968. Dr. Kershner served on the Council of the Maine Medical Association from 1927 to 1932, was President-elect from 1932 to 1933 and President from 1933 to 1934. He was also a member of the American Medical Association and had served as President of the Medical Association of New England, Ophthalmological Society.

Dr. Kershner, interested in civic affairs, was elected President of the Chamber of Commerce in Bath in 1919. That same year, several weeks before the Bath Rotary Club received its charter, he joined the club and at the time of his death was its oldest living member. The club recognized him at the 50th anniversary in 1969 and presented him with a clock inscribed "50 Years a Rotarian." He was a Past President of the Club. His other civic activities included a long participation in the finance committee of the Thomas G. Plant Memorial Home which he chaired; was a corporator of Bath Savings Institution; a corporator of Patten Free Library; a member of the local committee on public safety, organized the day after the declaration of war on Germany in 1917; and was a member of the Bath Chapter of the American Red Cross.

Surviving are his widow, Florence Carlton Kershner of Bath and several cousins.

Currier C. Weymouth, M.D.

1891-1972

Dr. Currier C. Weymouth, 80, of Farmington, Maine died at his home on January 8.

Dr. Weymouth was born in Freeman, Maine on October 4, 1891, son of Fred C. and Elizabeth M. Weymouth.

He was graduated from Kingfield High School, the University of Maine and received his medical degree from Tufts University School of Medicine in 1919. Dr. Weymouth practiced medicine and surgery for 13 years in Hopedale, Massachusetts and was a visiting surgical staff member of the Milford Hospital. He was a medical examiner for seven years in Massachusetts and served for seven years as a selectman in Hopedale, Massachusetts. In 1932, Dr. Weymouth came to Farmington and practiced there until his retirement in 1960.

Dr. Weymouth was an honorary member of the Franklin County Medical Society and the Maine Medical Association, receiving a 50-year pin in 1969. He served on the Council of

the Maine Medical Association for the Second District from 1942-1945 and 1951-1954. He was also a member of the American Medical Association, a member of the Franklin County Memorial Hospital staff, served 16 years on the State of Maine Board of Registration of Medicine, served 17 years as examiner of the Franklin County Selective Service and 11 years as medical examiner at the Franklin County Draft Board.

Surviving are his widow, Edna Andrews Yeaton Weymouth of Farmington; a son, CDR Burton R. Weymouth of Fairfax, Virginia; a stepson, G. William Yeaton of Skowhegan; three sisters, Mrs. Florence W. Hunnewell of Farmington, Mrs. Harold Hutchins of Kingfield, Miss Clarice Weymouth of Farmington; and four grandchildren.

Gunther H. Rowe, M.D.

1911-1972

Dr. Gunther H. Rowe, 60, of Chisholm, Maine, died unexpectedly at an Augusta hospital on January 10.

He was born in Wuppertal-Barmen, Germany on March 11, 1911, son of Bernard J. and Martha Z. Rowe. Dr. Rowe was graduated from Wuerzburg, Germany in 1932 and received his medical degree from Duesseldorf Medical School in 1935. In 1936, he came to Boston where he served in the outpatient department at Beth Israel Hospital and then interned at the St. Mary's General Hospital in Lewiston in 1937. He established his practice in Livermore Falls in 1938.

Dr. Rowe was a member of the Franklin County Medical Society, the Maine Medical Association and the American Medical Association. He was an active member on the staff of the Franklin County Memorial Hospital in Farmington and was on the courtesy staff at the Central Maine General Hospital and St. Mary's General Hospital in Lewiston, as well as the Rumford Community Hospital.

Surviving are his widow, Mary Hoag Rowe, of Farmingdale; three daughters, Mrs. Donald R. Hayes of Springfield, Virginia, Mrs. David E. Bunting of Melrose, Massachusetts and Miss Nancy Lee of Farmingdale; two sons, Thomas E. of East Millinocket and Lt. Kenneth E. of Tustin, California; a stepson, Bruce Boucher of Farmingdale and seven grandchildren.

County Society Notes

KENNEBEC

The Kennebec County Medical Association met on December 9, 1971 at the Augusta State Hospital in Augusta, Maine. Dinner was served 40 members and guests. The business meeting was opened by the President, Dr. Paul A. Jones, Jr. The minutes of the last meeting and the Annual Treasurer's Report were read and accepted. A communication from Dr. H. Richard Hornberger requesting time during one of our meetings for a presentation by "The Townsend Farm," on organizing an alcoholic treatment and rehabilitation center for the central Maine area was read and referred to the incoming President and Council for scheduling at a subsequent meeting.

The following applicants for membership were announced: Drs. Ulrich B. Jacobsohn, Augusta State Hospital and Fred John Lagomarsino, Waterville and their applications were referred to the Council.

Dr. Earle M. Davis then submitted the report of the Nominating Committee with the following slate of officers for 1972:

President: Dr. Francis J. O'Connor, Augusta
Vice-President: Dr. Richard R. Dole, Waterville
Secretary-Treasurer: Dr. Francis A. Spellman, Togus
Delegates to the M.M.A. House of Delegates: Drs. Richard E. Barron, Winthrop, George I. Gould, Richmond, Richard T. Chamberlin, Earle M. Davis, Samson Fisher and Valentine J. Moore, all of Waterville. Alternates: Drs. Raymond E. Culver and Albert A. Poulin, both of Waterville, Brinton T. Darlington, John D. Denison, Terrance J. Sheehan and John H. Shaw, all of Augusta
Council: Drs. James C. Hayes and William E. Schumacher, both of Augusta and Joseph J. Hiebel and Paul A. Jones, Jr. (ex-officio), both of Waterville

The proposed slate of officers was duly elected.

Dr. Jones then introduced Mr. Roy A. Ettlinger, Superintendent of the Augusta State Hospital, who presented a review of the Augusta State Hospital's NEW UNITIZATION PLAN AND NEW ADMISSION POLICIES. There was active and vigorous participation by Association members in the discussion of these challenging new policies.

The meeting was adjourned by Dr. Jones at 9:10 p.m.

Francis A. Spellman, M.D., *Secretary*

LINCOLN-SAGADAHOC

The regular monthly meeting of the Lincoln-Sagadahoc County Medical Society was held at The Ledges in Wiscasset, Maine on December 21, 1971.

The minutes of the last meeting were read after the meeting was called to order at 9:00 p.m. by the President, Dr. Frank O. Avantaggio, Jr.

Dr. Avantaggio appointed Drs. Henry A. Hudson and Charles C. Morrison to serve on the Peer Review Committee, with Dr. Hamdi Akar as Chairman. Dr. Paul A. Fichtner pointed out that the terms of the members of this committee be staggered.

Dr. George W. Bostwick spoke of the vote of confidence which the M.M.A. House of Delegates gave to the State Peer Review Committee. Dr. Fichtner explained the current status of Peer Review and details of the State review structure.

Dr. Avantaggio appointed Dr. Elihu York to the County Peer Review Committee.

The transfer of membership of Dr. Louis Bachrach from Cumberland County Medical Society to this Society was recommended by the Board of Censors, moved by Dr. Fichtner, seconded by many, and approved unanimously.

Dr. Bostwick announced the institution on January 1, 1972 of a 5-digit code for Blue Cross and Blue Shield procedures.

Dr. Avantaggio appointed the Nominating Committee to bring in a prospective slate of nominees for office at the January meeting: Drs. Edward L. Kinder, Jr., Carl R. Griffin, Jr. and Samuel L. Belknap.

Dr. Nelson P. Blackburn, for the Program Committee, in-

troduced Dr. Elihu York, who spoke on Human Preventive Maintenance Testing.

GEORGE W. BOSTWICK, M.D., *Secretary*

LINCOLN-SAGADAHOC

The regular monthly meeting of the Lincoln-Sagadahoc County Medical Society was held at The Ledges in Wiscasset, Maine on January 18, 1972.

The meeting was called to order at 9:20 p.m. by the President, Dr. Frank O. Avantaggio, Jr. The minutes of the December meeting were read by the Secretary and accepted as corrected. The Treasurer's Report was read.

There was no old business, as no member of the nominating committee was present. There were no committee reports or new business. The meeting was then turned over to the dessert and Program Committee.

Dr. Henry A. Hudson introduced Dr. Currier McEwen who spoke on the treatment of rheumatoid arthritis.

GEORGE W. BOSTWICK, M.D., *Secretary*

CUMBERLAND

The 364th meeting of the Cumberland County Medical Society was held at Anthony's Restaurant in Portland, Maine on December 16, 1971. There were 66 members and guests in attendance. After the Social Hour from 6:00 to 7:00 p.m., the Society was served an excellent meal of roast beef and baked potato.

The meeting was called to order at 8:00 p.m. by the President, Dr. Lawrence Crane. It was motioned, seconded, and voted that the reading of the minutes of the previous meeting be dispensed with.

The application of Dr. Daniel C. Bryant was read for the second time to the Society and he was elected into the Cumberland County Medical Society by unanimous vote.

A letter from Mrs. Judith Hannemann was read to the Society in part. Mrs. Hannemann expressed the idea that she would like to serve as Executive Director of the Cumberland County Medical Society. After a suitable period of discussion, it was decided by the Society that Mrs. Hannemann should be invited to speak before the Society and express her ideas as to what might be accomplished with her as Executive Director. This will be arranged as soon as possible, possibly before the February meeting.

Dr. Stanley B. Sylvester spoke briefly to the Society, asking for any help that might be given him regarding an accident he sustained the night of the November meeting.

Dr. George F. Sager gave a report of the House of Delegates meeting held in Bangor on December 5, 1971. Dr. Douglass W. Walker followed Dr. Sager's report by stating that the support of the Maine Medical Center for the Medical School of Maine program would depend on that program's striving for excellency in the qualifications of its students. It was emphasized that this was not the official position of the Maine Medical Center, but his personal feelings.

Dr. David S. Wyman gave a report from the Utilization Committee. Dr. Ferris S. Ray and Dr. Albert Aranson gave a report of the Health Insurance Committee. No report from Dr. Charles W. Capron on the Auxiliary Committee. Dr. Richard S. Hawkes gave a report of the Professional Ethics Committee. Dr. Harry A. Bliss gave a brief report from the Peer Review Committee.

The new Bylaws were presented to the Society and several suggestions were made for corrections and additions. These were noted and will be returned to the Bylaws Committee for further correction and full presentation at a later date.

The report from the Treasurer was given. Dr. Crane read the President's report. Dr. Sager gave the report of the Nominating Committee.

President: Dr. Lawrence Crane, Portland

Vice-President: Dr. Sidney R. Branson, South Windham

Executive Committee: Dr. Stanley B. Sylvester, Portland (3 yrs.)

Professional Ethics Committee: Dr. Ralf Martin, Portland (5 yrs.)

Delegates to the M.M.A. House of Delegates: Drs. Stephen E. Monaghan, John R. Davy, Irving J. Poliner, Peter B. Webber and Robert G. Sommer, all of Portland. Alternates: Drs. Ronald J. Carroll, Harry A. Bliss, Paul Maier, William J. Hall, III and Hugh P. Robinson, all of Portland

Following the report of the Nominating Committee, the meeting was adjourned.

DOUGLAS R. HILL, M.D., *Secretary*

ANDROSCOGGIN

A meeting of the Androscoggin County Medical Society was held at Steckino's Restaurant in Lewiston, Maine on January 20, 1972. The meeting was called to order by the President, Dr. Thomas F. Shields, at 8:00 p.m., with 43 members present.

Minutes of the December meeting were read, corrected and accepted. The correction was in relation to the number of oral polio vaccine doses administered; 12,000 in Lewiston and about 10,000 in Auburn, rather than the 710,000 noted in previous meeting.

Correspondence was accepted in the form of application for membership from Dr. Patricia Ann Adams and the application forwarded to the credentials committee for approval. Then also is letter of application from Dr. Antonio C. Tiongson. Application forms were forwarded to Dr. Tiongson for completion.

The office of the Secretary of this Society was notified by the Maine Medical Association that the correct number of delegates from Androscoggin County is 4 and the present number of delegates elected by this Society is 5. The matter was taken under advisement by the President and proper adjustment will be made at the next regular meeting of this Society.

The application for membership in this Society by Drs. Klaus Kuck and Oscar Cabatingan have been approved by the Credentials Committee. It was moved, seconded and voted to accept these physicians into the Androscoggin County Medical Society.

Dr. Wilfrid A. Cloutier reported for the Peer Review Committee, and requested the aid and assistance of the hospital Utilization Review Committee in referring retroactive denials from the Associated Hospital Service of Maine.

Under new business, there was a short discussion about the IRS requirements concerning posting of statements relative to physicians' fees and having fee schedules available for inspection at all times.

The President requested resolutions from the delegates to be presented at the next regular meeting of this Society. These resolutions must be acted upon prior to instruction of the delegates for the April 1972 meeting of the House of Delegates of the Maine Medical Association.

It was requested and authorized for the Secretary of this Society to forward copies of the Committee assignments and the names of the Delegates to each member of the Society.

Dr. Gilbert R. Grimes, program chairman, introduced the guest panel from the Maine Medical Center. The guest panelists were Drs. Douglass W. Walker, Medical Director; Albert Aranson, Chief of Medicine and Director of Medical Education; George W. Hallett, Chief of Pediatrics; and Robinson L. Bidwell, President of the Staff, Maine Medical Center. The topic of discussion was "Pattern in Medical Education for Maine in the 70's." The individual and general consensus of the panel was that the best solution for providing increased rural health care in Maine was not in organizing an innovative Medical School, but in more and better residency and internship programs throughout the existing medical facilities in Maine. It was pointed out that the national statistics show that about 50%

of the physicians stay in the locale where they receive postgraduate clinical education and only about 15-20% of the students remain in the locale where they receive undergraduate medical education (medical school). It was suggested that the medical care of the future is likely to be 40-50% provided by paramedical health care personnel which remained provided by conventionally trained physicians. Training of undergraduates (medical students) is by no means the only way to increase the number of physicians in the State of Maine for either rural health care delivery or for postgraduate training programs. Within the existing medical facilities of the State, there are available numerous postgraduate clinical teaching areas which can be exploited without expenditure of a multi-million dollar innovative medical school for undergraduate teaching only.

Meeting adjourned at 10:00 p.m.

RICHARD M. SWENGEL, M.D., *Secretary*

YORK

The annual meeting of the York County Medical Society, in association with the Woman's Auxiliary, was held at the Officers Club at the U.S. Navy Yard, Kittery, Maine on January 12, 1972. The program was as follows: 6:30 to 7:30 p.m. – Social Hour; 7:30 to 8:30 p.m. – Dinner – Speakers; 8:30 to 9:00 p.m. – Separate Business Meetings; 9:00 to 12:00 – Dancing – Music by John Cella – Impersonator, Jack Towle.

The featured speakers were Congressman Peter Kyros who spoke on matters related to health problems, and His Excellency Governor Kenneth Curtis whose subject was "Changing Policies in State Institutions."

One of the important business matters voted on was the election of officers of the York County Medical Society for the coming year which was as follows:

President: Dr. Ruth Endicott, Ogunquit
Vice-President: Dr. Irvin Dorfman, Biddeford
Secretary-Treasurer: Dr. Charles W. Kinghorn, Kittery
Assistant Secretary-Treasurer: Dr. Melvin Bacon, Sanford
Executive Committee (to include above officers): Drs. Carl E. Richards, Sanford and Walter R. Peterlein, Jr., Springvale
Delegates to the M.M.A. House of Delegates: Drs. Carl E. Richards, Paul S. Hill, Jr., Saco and Badi M. Haq, Biddeford. Alternates: Drs. Kenneth E. Leigh, York, Maurice Ross, Saco and Michael M. P. Magaudda, Old Orchard Beach
Censor Committee: Drs. Maurice Ross, Marion K. Moulton, West Newfield and Alvin A. Hoffman, York
Peer Review Committee: Drs. Kenneth E. Leigh, Chairman, Paul S. Hill, Jr., Melvin Bacon and Thomas Anton, Biddeford

The Nominating Committee was composed of Drs. Carl E. Richards, Kenneth E. Leigh and Melvin Bacon.

The President, Dr. Ruth E. Endicott, announced that the next meeting of the York County Medical Society would be held at the Goodall Hospital in Sanford on March 10, 1972 in the evening. The Committee in charge of this meeting is Dr. Carl E. Richards and Melvin Bacon. Dr. Endicott also introduced all those at the head table. A truly delicious meal was served.

It is interesting to note that this is the 42nd consecutive year for our Secretary-Treasurer, Dr. Charles W. Kinghorn.

The Committee in charge of the Annual Meeting was Captain Fisichella, USN, MC for the Navy Yard and Dr. Charles W. Kinghorn for the Society.

Captain Westfall, the Commanding Officer of the Navy Yard, gave the opening remarks and welcome to the guests.

There were 126 doctors and their wives and guests present. Gift packages were given to the ladies and red apples donated by Romac Orchards of Sanford were distributed to every one attending.

CHARLES W. KINGHORN, M.D., *Secretary*

News, Notes and Announcements

State of Maine Board of Registration of Medicine
Secretary — George E. Sullivan, M.D.
Waterville, Maine

Physicians Licensed to Practice Medicine and Surgery in the State of Maine

Through Examination — 1970

Athanasoulis, Christos A.; Badrinath, Ketty; Bal, Jose A.; Batata, Mohamad A. M.; Carter, Anne C.; Chandrasekhar, Arcot J.; Chandrasekhar, Hema; Corro, Prudencio C.; D'Souza, Walter F.; Guzman, Pablo S., Jr.; Hoda, Mohammed Q.; Holm-Anderson, Ingolf; Hong, Jae H.; Jammes, Juan L.; Jeanty, Darly; Jeanty, Paulette G.; Jhung, Jhung W.; Keen, Ernest D.; Kessler, Howard; Linardakis, Michalis J.; Murthy, Keshava; Nadeau, Conrad, J. L.; Nguyen, Vihn C.; Padeh, Asher, S. A.; Palav, Aravind B.; Palma, Loreto D.; Piedad, Oscar H.; Raja, Muhammad R.; Rodriguez, Bella R.; Ryan, Patrick J. M.; Santos, Rodolfo J.; Savci, Hasan D.; Shimosato, Shiro; Wind, Chiel A.; Yip, Luke C. K.; Youakim, Maurice I.

Through Examination — 1971

Abdel-Messih, Nazmi Y.; Ahmad, Iftikhar; Aquino, Emma S.; Baker, Brian L.; Barlizo, Benjamin T., Jr.; Bejarano, Napoleon D.; Bellevue, Rita; Berger, Dirk M.; Blitstein, Alan; Caceres, Jaime M.; Chand, Kishan; Chikkappa, Gundabhaktha; Ching, Yiu T.; Cruz, Honorio M.; Desai, Dinesh V.; Donato, Antonio T.; Ehrig, Ulrich; Ganel-Gottlieb, Helena; Ghavimi, Fereshteh A.; Goffin, Michael J.; Golimbu, Cornelia N.; Gulati, Suresh K.; Hilario, Eduardo T.; Hong, Peter H.; Horie, Tsukasa; Ilahi, Mohammad A.; Jung, Yoosuck; Khu, Enrico G.; Kim, Ikjin; Kirkorowicz, Grzegorz B.; Koopal, Soleiman; Lee, Kwang S.; Leguizamon, Mario C.; Litoff, Jerold; Maddiwar, Gangadhar L.; Makary, Rafik Z.; Marshall, Cyril E.; Matz, Rodney S.; Mohammadbhoy, Kayum; Mompoint, Olga D.; Moussa, Khofo S.; Murthy, K. Venkata K.; Nader, Munir; Nazareth, Ronald V.; Njo-Injo, Tjoei E.; Obas, Remy; Ouano, Francisco V.; Pahuja, Krishna; Patel, Ambalal K.; Patronas, Nicholas; Pogacar, Srecko; Rafalowicz, Adam; Rajasenan, Vasudevan; Rao, Sybil P.; Raufi, Nooredin; Regalado, Laurencia B.; Regay, Sharad D.; Richter, Josef; Roy, Salil; Sahakian, George J.; Saraf, Kishore R.; Shafa, Mehdi G.; Siddiqui, Saleem A.; Sosa, Buddy P.; Sreeramaiah, Kamaganahalli M.; Stein, Nathan; Suh, Kyong S.; Sultan, Leon; Sundaram, Padma S.; Sundaram, Shanmugha K.; Swamy, Hassan K. N.; Tak, Won K.; Unite, Ismael H.; Varghese, P. Jacob; Weir, Roger L.; Wiedemann, Eckehart; Woo, Byung H.; Yayla, Huseyin.

Through Reciprocity — 1970

Alavi, Iltifat A.; Aslam, Padiath A.; Augur, Newell A., Jr.; Barden, Robert P.; Barron, Bruce J.; Beaupre, Eugene M.; Begenau, Vernon G.; Boudreau, Donald J.; Bresnahan, H. Dean; Chafizadeh, Jafar; Crisologo, Juanito A.; de Freitas, Andre M.; Depow, Charles W.; Diehl, William H., Jr.; Doil, Kenneth L.; Dunham, Edward K.; Emmett, Peter A.; Files, George E.; Flicklich, Earl A.; Fresch, Frank J.; Garnett, James H. P.; Gillies, James T. Y.; Giustra, Peter E.; Glasgow, Thomas S.; Gottlieb, Brian M.; Goulet, Gilles; Grose, Paul S.; Hampshire, John K.; Hayden, Joseph V.; Heath, Gordon A.; Hedges, Thomas R., Jr.; Hendler, Freddy J.; Hickey, Vincent J.; Hoak, Frank C.; Hodeen, Eric C.; Horstman, Anthony J.; Howe, Chester W.; Hudson, Mary H.; Jurgeleit, Herbert C.; Kahn, Richard J.; Kessner, David N.; Klopp, Donald W.; Knuuti, Harold E.; Kraunz, Robert; Kundu, Radha B.; Lang, Donald J.; Leck, Richard C.; Little, Charles W.; Long, Charles L.; Luk, Peter; MacKinnon, Bernard L.; Mahon, David F.; Mason, Mahlon R.; Matanabe, Tatsuo; Milam, Robert W.; Murthy, Kurukundi K.; Noble, Walter H. M.; Nowtash, Manouchehr; O'Connor, Michael K.; Ordway, John A.; Page, Lyman A.; Paulding, Stephen B.; Perlman, Michael S.; Putnam, Deborah A.; Raia, Theodore J., Jr.; Raymond, Louis F.; Rubin, Abraham L.; Sanzenbacher, Karl E.; Sawyer, Clarence E.; Schall, David W.; Schnittke, Sidney M.; Singh, Indarjit; Smith, Christopher S.; Sokol, Stephen A.; Stone, Charles H., III; Swisher, Charles L., II; Thorpe, Darrell P.; Thurber, Charles F.; Torres, Rudolfo B.; Tyler, John W.; Unger, Richard H.; Walker, Frank A.; Williams, Ernest B.; Wise, Joe R., Jr.; Yaghmai, Madjid.

Through Reciprocity — 1971

Abraham, Gerald M.; Adams, Patricia A.; Andrews, Willard E.; Anglem, Thomas J.; Arciniegas, Eduardo; Belliveau, Donald G.; Bennett, Ralph G., Jr.; Bousquet, Robert R.; Boyd, Marjorie A.; Brotman, Sheldon; Buck, Alfred S.; Burger, Charles S.; Burnett, Bradford B.; Byrne, Francis A.; Caldwell, Edgar J.; Carmichael, Francis A., III; Carnes, Charlotte C.; Chang, Stanley F.; Chien, Chang-chi; Chung, Byung H.; Collins, Deirdre S.; Collins, John C., Jr.; Dacso, Magda R.; Dacso, Michael M.; Dahl, Bernhoff A.; Davis, William F.; Dixon, Charles E.; Drewry, Jan; Fingard, David H.; Gay, Andrew J.; Gerstenblith, Theodore; Ginder, David R.; Graf, Frank A., II; Greenough, William S.; Griffiths, Anthony J. M.; Groce, Philip C.; Gvozdenovic, Frank M.; Haddon, William, Jr.; Hahn, William H.; Hallee, Theodore J.; Hamilton, Kenneth G.; Hannemann, Joseph H.; Hayes, Leonidas B., Jr.; Hickey, Arthur C.; Hooker, J. Patrick; Horner, George S. H.; Huang, Shing-Sheng J.; Jacobsohn, Ulrich B.; Juzych, Marius S.; Kaschub, Robert W., Jr.; Kenworthy, Roger A.; Kreider, Larry W.; Lathi, Dewayani C.; Lathi, Subhashchandra G.; Lawrence, Frank H., III; Letourneau, Joseph A.; Lucier, Eugene R.; Macbride, John J.; MacElwain, Dale A.; Mahour, Gholam H.; Marcotte, Gilbert E.; Martin, Stuart H.; Masand, Ghanshyam P.; Maunz, Don L.; Medbury, Sawyer E.; Memon, Muhammed Y.; Morton, Jeremy R.; Murdaugh, Herschel V., Jr.; Nemoitin, Bernard O.; Niedorf, Saul; Nielson, Iver C., Jr.; Norzow, Alex J.; Oboler, Allen A.; Ocana, Emilio; Olson, Loren A.; Ordway, Janet E.; Park, Chang-Hwan; Pecora, J. Louis; Perry, Richard L.; Read, Frank W.; Reed, David G.; Rothstein, Daniel; Rowan, Gilbert R.; Rubenstein, Howard S.; Saidi, Farrokh; Shore, Neil S.; Simopoulos, Chris; Sobczak, Gregory T.; Soreff, Stephen M.; Strauss, William T.; Suarez, Joseph A.; Sube, Janis; Sundaram, Venkat R.; Sweeny, Donald N., Jr.; Tao, Zui S.; Tessier, Paul A.; Tibbetts, Otis P.; Tiongson, Antonio C.; Tiongson, Cornelia M.; Toppenberg, Glenn D.; Townsend, Timothy R.; Tsao, Wu-Ming; Turner, Thomas E.; Van Huysen, William T.; Vigue, Robert W.; Voss, Carlyle B.; Watts, Henry M.; Webster, Earle H.; White, Robert J.; Williams, Larry R.; Wood, David E.; Wood, Dwight R.; Wright, Ralph C.; Young, William J.; Zerner, John.

Maine Medico-Legal Society

The Medico-Legal Society presents a spring symposium. A panel discussion of questionable deaths with special emphasis placed on death scene investigation such as to when the autopsy is necessary, extent of toxicological tests, protection of the scene by the medical examiner and police officers, press relations, the civil autopsy, personal affects of the deceased, and preparation of testimony for court.

The panel will be moderated by Anthony Betts, M.D., President, Medico-Legal Society. The rest of the panel will consist of medical-legal professionals:

- Lewis Niaman, Justice, Superior Court
- Charles F. Branch, M.D., Chief Medical Examiner
- Peter Culley, Esq., Chief, Criminal Division, Department of the Attorney General
- Lt. Charles R. Bruton, Commander, Bureau of Criminal Intelligence, Maine State Police
- Alfred A. Howes, Chief Inspector, Criminal Division, Department of the Attorney General
- Paul Brinkman, M.D., Medical Examiner
- Foahd J. Saliem, Esq., Kennebec County Attorney

This is to be held April 5, 1972 at the Silent Woman in Waterville, Maine; 6:00 to 7:00 P.M., social hour; 7:00 P.M. dinner. A choice of sirloin steak or cornish hen – $5.00 including gratuity and sales tax.

Reservation necessary – call 289-2146 or write to Alfred A. Howes, Secretary-Treasurer, in care of the Department of the Attorney General by April 3, 1972.

Letters to the Editor

To the Editor:

The eight trainees in RMP's Family Nurse Associate Project have completed their formal course here in Portland and are about to begin their eight months' field experience. For the past 4 months they have been instructed in history taking, physical examination, common laboratory tests, first aid, common adult medical problems and the urgency with which physician guidance must be sought for these problems. They are now beginning to practice those skills under physician supervision in various areas including Portland's Model Cities Area, home health agencies, homes for the elderly, high school and university health programs, and in rural and island health programs. A certificate from UMP-G's Continuing Education Division will be awarded at the completion of the field experience.

Ways are now being explored to make a similar program available to the physician's office nurse on a part-time basis in the spring of 1973. If any physicians are interested in having their office nurses take the course on a part-time basis, we would like to hear from them.

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Project Director
Family Nurse Associate
Maine Medical Center
Portland, Maine 04102

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Diabetic Ketoacidosis in Childhood*

Terrance Sheehan, M.D.**

The average physician dealing with children will infrequently be faced with diabetic ketoacidosis, with or without coma. Yet, this will invariably happen and the need to have a precise plan for treatment is essential.

When faced with such a patient, there are two major problems. The first is a loss of intracellular and extracellular water and electrolyte stores. The second is the lack of insulin. The physician's job is to replace the water and electrolyte losses and to give proper amounts of insulin. Fortunately, the amounts of fluid, electrolytes, and insulin have been well worked out and once the diagnosis is made, the results of treatment are nearly always successful. Therapy in such a child is not difficult and certainly should not be taxing to the laboratory.

Physiology

The diabetic lacks insulin with subsequent hyperglycemia, glycosuria, osmotic diuresis, and loss of fluid and electrolytes. The body compensates with polyphagia, polydipsia, and gluconeogenesis. The fat is catabolized and ketones are formed. Acidosis results from this ketosis and by the reduced renal function associated with dehydration. Vomiting often becomes associated, along with infection.

Diagnosis

The diagnosis of diabetic ketoacidosis is not always easy. This stems from the fact that children often show glycosuria and ketonuria under stress. This fact is not emphasized in the literature and should be well remembered. Subsequent urines in these stressed children often show no glycosuria and the blood sugar is usually under 150 mg.%. When the stress is relieved, the glycosuria disappears. Whether these children are chemical diabetics is not important in the treatment of that illness. Medications like adrenalin and large doses of aspirin can cause a significant hyperglycemia and pose diagnostic problems. I personally have seen a blood sugar of 500 mg.% with large amounts of sugar and acetone in the urine secondary to salicylism. Insulin was not needed. A similar situation occurred shortly after an adrenalin injection in an asthmatic.

There is often a history of excessive drinking, eating, and urinating in the preceding days to weeks. However, in the young child one may not get this history as they cannot control their eating habits. The child will be hyperventilating, dehydrated, and very ill except in the early course of his illness. Coma may be present. The child may be urinating well despite looking dehydrated. This is an important clue if present. A family history of diabetes makes one feel better about the diagnosis, but otherwise is of little value. Vomiting, abdominal pain, and intercurrent infection are often present.

Therapy and Initial Evaluation

After the initial physical examination, the patient should have his height and weight recorded, as well as his surface area. An I.V. should be started. An indwelling urinary catheter will be necessary if the patient is in coma. Blood is drawn for a BUN, blood sugar, sodium, potassium, chloride, and CO_2 determination. If infection is suspected, then appropriate cultures should be obtained. A urinalysis should be obtained with specific note of urinary sugar and acetone. Once this is done, the patient is followed clinically and all urines are checked for sugar and acetone. Subsequent blood sugar and potassium determinations are also obtained. A large number of laboratory determinations are useless. Clinical evaluation is far more important. The degree of hyperventilation and central nervous system depression closely parallels the degree of acidosis. The degree of dehydration can be obtained from the dryness of the mucous membranes, hollowness around the eyes, and skin turgor.

*The Robert A. Boutin Memorial Lecture prepared for the Maine Institute of Continuing Medical Education was presented at the Augusta General Hospital, March 9, 1971.

**Augusta General Hospital, Augusta, Maine 04330.

From the height and weight, the patient's surface area is determined. From the physical examination, the degree of dehydration is determined. The following rules are used to rehydrate the patient who is comatose or precomatose. Dehydration is considered severe in these cases.

Twenty-five (25) milliliters per kilogram over 1 to 2 hours intravenously. Then 3500 milliliters per meter squared per 24 hours. Give ½ of the 3500 milliliters per meter squared over 8 hours and the remainder over the next 16 hours. Obviously, lesser amounts of fluid are required for milder degrees of ketoacidosis and rehydration is constantly evaluated. The adequacy of the infusion rate can be judged from the urine flow which should be approximately 1 milliliter per meter squared per minute during the early treatment phases.[1]

The next problem is to determine the type of fluids that are used. During the first one to two hours, normal Saline is used. Then if the patient is voiding well and one is assured of good kidney function, which is usually the case with children, a switch to a multi-electrolyte solution may be made. A good solution to use contains the following: 50 grams of sugar per liter and the following electrolytes in milli-equivalents per liter – sodium 56.5, potassium 25, magnesium 6, lactate 25, chloride 50 and phosphate 12.5.

The amount of insulin to be administered is then determined. Crystalline (regular) insulin is given initially. The dose depends on the weight of the patient and the severity of the illness. In a comatose patient with no prior insulin treatment, the following is used:

Stat: 4 units per kilogram. Give ½ of this intravenously and ½ subcutaneously. Then in 4 hours give 1 to 2 units of insulin per kilogram subcutaneously. Thereafter, every 4 to 6 hours as follows: 1 unit per kilogram if the urine is 4 + sugar and ketones are strongly positive.

0.5 units per kilogram if the urine is 4 + sugar and weak or negative ketones. 0.3 units per kilogram if the urinary sugar is 2 to 3 +, and none if the urinary sugar is 1 + or negative.[1]

Regular insulin is given over the next 3 to 4 days and then NPH insulin is given in the morning at a dose of approximately ¾ of the total regular insulin dosage over the previous 24 hours. At the same time, the regular insulin is stopped. For example, if the previous day the child received a total of 24 units of regular insulin, then 18 units of NPH is started the following morning.

Once the patient begins to respond, with disappearance of coma, normal or near normal respiratory rate, and hydration improves, then the physician still has two fears. The first is hypoglycemia. This is counteracted by glucose in the rehydrating solution and resisting the temptation to obtain glucose-free urine too early. It should be pointed out that glucose is also given in the rehydrating solution for repletion of glycogen stores and provision of energy to the tissues. The second fear is hypokalemia. This is counteracted by giving potassium in the hydrating solution. As soon as insulin starts to work, potassium is drawn into the cells at an accelerated rate. It is wise to check the serum potassium several hours after insulin is started and perhaps later if potassium levels become low. An alternate method would be an EKG tracing looking for effects of hypokalemia. Rarely will potassium have to be added to the above-named hydrating solution. Once treatment has begun the fear of hyperkalemia is virtually nil since the intact kidney can excrete at least 10 milli-equivalents of potassium per meter squared per hour.[1]

It should be mentioned again that the above insulin and fluid dosages refer to the severely ill new diabetic in ketoacidosis in coma or pre-coma. The dosages change considerably in those who are less ill.

Summary

The treatment of the diabetic in ketoacidosis can be simple and gratifying. The basic treatment is insulin, fluids, and electrolytes. The clinical appraisal of the patient plus close observation of the urinary indices are the most valuable guides to therapy.

Reference

1. Ritchie, R. H. and Talbot, N. R.: The Management of Diabetic Keto-acidosis and Coma, Pediatric Clinics of North America, Vol. 9; No. 1: pp. 263-276, W. B. Saunders Company, Philadelphia, Feb. 1962.

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Practices in Pediatrics — Science or Myth?

Arthur J. Salisbury, M.D., MPH* and Robert B. Berg, M.D., MPH**

Abstract

Pediatricians in Massachusetts have been interviewed to determine their practices regarding duration of hospitalization of low-birth-weight infants and their reasons for following this practice. Seventy-three percent were basing their decision to discharge on the attainment of a weight of 5 lbs. or more. Fifty-eight percent stated that discharge at lesser weight would place the infant at increased risk, this being a traditional view which has been maintained without validation. On the basis of other studies, it is recommended that practices should be altered and weight not included among the criteria for discharge.

In the past decade, pediatrics, like all other medical specialties (and pediatricians, like all other medical practitioners) has come under unaccustomed scrutiny and questioning from government, insurance companies, the news media, union officials and even from some grateful patients. This scrutiny and these questions are expressions of concern about the so-called "crisis in medical care," which term, translated into everyday complaints, means, "no doctors on call," "no house visits," "no beds in the hospital" and "you can't afford to be sick these days." The individual practitioner should not be made the scapegoat for all these complaints, but the grumbling and growling should prompt us to examine many of our beliefs and practices to determine if they have the scientific validity to deserve the status of dogma.

Not infrequently, similar inquiry has led to revisions of pediatric practice and practices which have eliminated the unnecessary and the unwise, and produced better health for infants and children. Examples are to be found in the now rejected practices of using boric acid for eye and skin care, of never giving unwarmed milk or formula, of the use of belly bands to treat umbilical hernia, of not including meat in the diet in the first year, of prohibiting the prone position for sleep and of prescribing large doses of the B-vitamins for every infant and child. There can, it seems, be reason and profit in asking, "What are we doing and why are we doing it?"

We have undertaken to find the answer to this question in relation to the duration of hospitalization of low-birth-weight infants. Our practice, with occasional exceptions, had been to consider discharge only after these infants had reached a weight of 5 pounds, but we were unable to justify this on the basis of demonstrated and reported hazards of earlier discharge. We had accepted, from our days of training, that these infants "do not eat and gain well at home," "are not able to withstand the infections to which they will be exposed at home," and "are too much responsibility for nervous mothers" until they weigh at least 5 pounds. The magical change that was produced by the gain of a few extra ounces was never explained.

An exhaustive search of the English, French and German literature dating back to the early years of this century failed to produce more than undocumented dicta such as that of the American Academy of Pediatrics in 1949 stating "the weight of the premature infant at the time of discharge from the nursery should have attained five pounds or more."[1] In 1954, this recommendation was ". . . a discharge weight of 5½ lb. (2.5 kg.) is a desirable standard."[2] Both of these statements are qualified by others indicating that additional factors might influence decision toward earlier or later discharge, but the fact seems to be that expert opinion was that weight was an important criterion in deciding that the time had come to send these babies home. Later positions of the Academy do not mention a specific weight, but this is the only indication that weight is not a criterion.

We were unable to find any papers or statements documenting that these babies fail to thrive, become ill or die and create chaos at home if they do not stay in hospital nurseries until they reach the weight which had become so standardized in our thinking. We suspect, however, that the importance given to weight has its origins in the prolonged effort by pediatricians all over the world in the 1930's and 1940's to agree on a common definition of prematurity. This was of great importance if statistics and results in many countries and institutions were to be comparable. In 1935, the Academy adopted the definition of a premature infant as one who weighs 5½ lbs. (2,500 gm) or less at birth.[3] This fixed reference point may then have been extended in the mind as the weight level at which an infant is no longer premature and is able to cope with the stress of a home environment.

We have reported elsewhere on the favorable results of our studies in which we ignore weight as a criterion in making the decision to discharge these infants.[4,5,6] The criteria on which we now base this decision are as follows:

1. Vital signs are stable and normal in room air.
2. Significant abnormalities have been corrected or treated to the point of stability.
3. Intake by bottle or breast is adequate and the mother has been successful in feeding the infant in the nursery.
4. Parents have been instructed in all aspects of care and are judged to understand their instructions.
5. Parents have made plans for postdischarge care by a physician in private practice or at a clinic.
6. The home is physically and hygienically adequate.

*Director of Medical Services, The National Foundation – March of Dimes, White Plains, New York.

**Pediatrician-in-Chief, Beth Israel Hospital, and Assistant Professor of Pediatrics, Harvard Medical School, Boston, Massachusetts.

7. The mother, or a substitute, is well and wants to undertake full care of the infant.

Inquiry

To ascertain the prevailing practices of our colleagues in discharging low-birth-weight infants ("What are we doing?") and the reasons for these practices ("Why are we doing it?"), we have queried 102 members of the American Academy of Pediatrics in Massachusetts. We selected for telephone interview those who are in active practice and whose daily activities include the care and management of newborns. The group is probably representative of such pediatricians in Massachusetts despite the fact that, due to inability to reach some by telephone and to other factors, not all pediatricians in this type of practice are included. We did not include a few pediatricians whose knowledge of our work might have influenced their responses.

We wanted to determine the degree to which pediatricians consider weight to be a major criterion for discharging low-birth-weight infants (defined for each respondent as *every* infant weighing 5 lbs. or less at birth) and we wanted to learn the reasoning supporting this consideration. We wanted to determine how many were conforming to the dictum that such infants should weigh at least 5 lbs. before discharge and we wanted to learn how many believed that law or regulation reinforced this dictum. Finally, we wanted to learn the nature of pediatricians' thinking on the possible benefits of shortened hospital stay.

It must be emphasized that these questions were asked in telephone interviews. The replies might have differed on written questionnaires or in more leisurely, face-to-face interviews.

Responses in Telephone Interviews

1. *What are your criteria for deciding that a low-birth-weight infant is ready for discharge?*

 We were interested only in responses which indicated weight as a criterion. No other responses were recorded. Eighty-one (79%) mentioned a specific weight or a weight range in their answer.

2. *Do you consider the baby's weight to be an important factor in deciding on discharge?*

 This was asked only to those who did not mention weight in answering question 1. Only 4 of these (4% of the total) answered "no" to question 2.

3. *What attained weight do you think is acceptable in deciding on discharge?*

 The answer to this question was almost always obtained from the response to question 1 or 2. The answers indicate that 73% of the pediatricians insist that babies weigh at least 5 pounds before discharge.

Response	*Number*
"about 5½ lbs."	15
"at least 5 lbs."	59
"4 lbs. to 5 lbs."	24
Answered "no" to question 2	4
TOTAL	102

4. *What would you say are the possible disadvantages or dangers of discharging these babies earlier than you now do?*

 The responses were grouped into those indicating maternal problems (anxiety, fatigue, etc.), those related to the well-being of the infant (illness, growth, etc.) and other responses. Some respondents gave more than one answer.

Response	*Number*
Maternal Factors	27
Increased Risk to Infant	58
Criticism or Malpractice	7
No Disadvantage or Danger	22

5. *What are the possible benefits or advantages of discharging these babies earlier than we now do?*

 As in the previous question, some respondents gave multiple answers.

Response	*Number*
Physical – Psycho – Social Development	43
Economic	41
Decrease Risk to Infant	35
Hospital Staffing	13
Facilitate Breast Feeding	3
None	11

6. *Are you aware of any state or local laws or regulations governing discharge of low-birth-weight infants in relation to their weight?*

 There are no such laws or regulations in Massachusetts. The State Department of Public Health administers a financial assistance program to pay the hospital bills of such infants whose families are medically needy. Under this program, assistance ceases when the infant's weight reaches 5½ lbs. There is, however, no law or regulation regarding shorter or longer hospital stay.

Response	*Number*
Not Aware of Any Law or Regulation	69
Law Requires Weight of 5½ lbs.	15
Law Requires Weight of 5 lbs.	5
There Is No Such Law or Regulation	13
TOTAL	102

Discussion

It is apparent that most pediatricians in Massachusetts do consider the attained weight of low-birth-weight infants to be an important criterion in making the decision to discharge them from hospital nurseries and that the great majority (73%) are following traditional levels of weight (5 lbs.-5½ lbs.) as being indicative that the post-hospital course of infant and family will be safe and smooth. The most frequently mentioned danger of not following this "rule" was that the infant would be exposed to the risks of illness and of inept care at home, these risks being lessened if the infant "stays a little longer and is a little bigger." It is of interest that only 4 practitioners disclaimed any concern for the infant's weight, but that 22 (including these 4) stated that nothing was gained or prevented by keeping infants until

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Beards and Bacteria*

ELIHU YORK, M.D., M.P.H.**

INTRODUCTION

Changing life-style and interest in individual expression have found many in our society adopting new modes of dress, or rediscovering old fashions. The re-appearance of facial hair has caused consternation on the part of some, or amused tolerance on the part of others. Does the beard pose a hazard to health in the hospital? Recent reports expressed some concern that beards may constitute an infectious hazard.[1,2] What are the facts?

INFORMATION

An editorial in the British Medical Journal, entitled "Bacteriological Hazards of Beards" cites evidence by M. S. Barbeito et al wherein the risk of beards causing infection was assessed.[3,4] Bearded volunteers were sprayed with non-pathogenic bacterial suspensions of Serratia marcescens and Bacillus subtilis, with or without intermediate washing, followed by shearing and cultures. Quantitative cultures showed that washing reduced the count of beard bacteria, although more persisted in the beard than the faces of clean-shaven men similarly treated. In a contrived experiment, a disembodied mannequin head with sterilized, natural hair "beard" was utilized; by spraying of virus, the investigators attempted to infect susceptible chicks. Few of the chicks were infected after intermediate washing of the "beard," although a majority were when that was not done. When the mannequin beard was sprayed with Clostridium botulinum toxin, and guinea pigs were nestled in the infected beard preparation for five minutes, four out of sixty succumbed. Although the *artificial* conditions in the laboratory produced some measurable differences in infected material from the beard with experimental animals, no ready extrapolation can be made for human beings in more usual environments of hospitals or clinics.

Two surgeons have expressed grave doubts about the safety of beards. Jelenko concedes that "the wearing of a beard, or sideburns, or of long hair is not of itself, the heart of the problem. A distinction can be made between clean, neatly trimmed hair and the unkempt scraggly variety. The former is not an uncommon appurtenance among members of the establishment in non-surgical specialties. Surgeons do not usually wear long hair because of the inconveniences it poses in preparing for operations and maintaining proper aseptic technique."[5] Prioleau is concerned about proper covering for the beard and hair, in order to prevent spreading of infection.[6]

Bernard et al, in attempting to study the reduction of the iatrogenic bacterial contamination in operating rooms, conclude that "direct bacterial transfer across the surgical gown and indirect transfer of bacteria through the air may be greatly reduced by wearing surgical clothing fashioned from a tightly woven cotton cloth."[7] Walter, in enumerating factors involving operating room infections, considers protective clothing, bathing, environmental factors and appropriate surgical technique; he makes no specific reference to beards.[8] Other clothing considerations raise the spectre of pant suits as being inappropriate and mini-skirts being safer in combating operating room infections.[9]

Have there been any documented infectious outbreaks attributable to beards occurring in the United States? Does there appear to be need for any further experimentation with bearded individuals? Both questions were addressed to an expert, who replied that "the critical experiment to show whether infections are actually caused by hair to the best of my knowledge has never been done, but to do it in the proper way would be quite difficult if strictly controlled. Thus, I do not see any need for such an experiment and am willing to accept the requirements of covering hair while in operating rooms."[10] Thus far, no reported instances where beard hair has been related to infections are known to have occurred; that is, direct spread of infection from a beard to involve other individuals.

SUGGESTION

Because of the lack of any quantifiable hazard for the spread of infection from bearded members as contrasted to the unbearded amongst health personnel, perhaps it would be wise to allow beards which are neatly trimmed and clean to be worn by those individuals who so desire. All operating room personnel should adhere scrupulously to the general principles of proper sanitary technique required. Infectious disease control committees at hospitals may wish to review established regulations, with consideration for newer materials for clothing, or indeed clothing styles!

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*The opinions or assertions contained herein are the private ones of the author, and are not to be considered as official nor as reflecting the views of the Bureau of Medicine and Surgery of the Navy Department, or the Naval Service at large.

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Are Certain Learning Disturbances a Definite Disease?

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Abstract

Subjects for this study were thirty-four pupils of the Sweetser Children's Home Campus School. Twenty-four were diagnosed dyslexic. The others were used as controls. The children were grouped according to sex and I.Q. Paired groups of observable traits were established. The groups were compared to the results of standardized test results and teacher scored checklists. As the comparisons were made, interesting patterns developed which lead to the conclusions of this paper.

Description of Setting

This study was undertaken at Sweetser Children's Home, a residential treatment home for emotionally disturbed children. A staff consisting of psychiatrist, psychologist, social workers, teachers, recreation workers and child caring personnel was responsible for the treatment of the children.

Confusion existed between staff members of the various disciplines. This paper is the result of an effort to correlate the findings of the individual staff specialists.

Sweetser cared for eighty-five disturbed children, thirty-four of whom attended our Campus school. The rest of the children were enrolled in the local public schools. The Campus school also served ten dyslexic students from the community-at-large. Twenty-five children in the Campus school were dyslexic by our standards, nineteen were not. All but one of the children in the Campus school were included in this study. This one child was retarded and was there only for a short stay. Most of the children remained at Sweetser for at least one school year.

A psychiatric workup was undertaken on each child at the time of admission. Psychological tests, achievement tests were given and a reading specialist conducted a reading analysis. All findings were reviewed on a quarterly basis.

Diagnosis of Dyslexia

Before admission each child underwent a diagnostic workup, including psychiatric and psychological examinations. Observations were made and records kept of the child's speech, an estimate of his ability to understand the meaning of time and place, a test of his serial learning ability, a Bender-Gestalt Test, a Wechsler Intelligence Test and the Wide Range Achievement Test. Later, at the Campus school, a more detailed achievement test was given; a diagnostic workup on the child's reading skills was collected as seen by our remedial reading supervisor; and a twenty-four item checklist on each child was completed by all his teachers. The results of these tests and observations made were used in this study.

Part of the admission workup at Sweetser included a diagnosis of dyslexia. Retardation in achievement without retardation in intelligence was thought to be a cardinal sign of dyslexia. Poor achievement was usually found in the area of reading and spelling; mathematics was often spared except when indirectly influenced by poor reading. There were, however, a few cases where mathematics may be the main area of achievement retardation. When a child had a testable IQ of under 85, one had to be very careful to differentiate dyslexia from simple retardation. There were five major signs of dyslexia – each was classified as a defect.

Series Defect

Typically, the ordinal sense developed more slowly in the dyslexic than in the normal child. This was tested by asking the child to count to twenty, tell the days of the week, the seasons, the months of the year, and the alphabet in order. There are specific ages at which these achievements should be completed, as established by Fish, et al. After several years of observation, it appeared that children with a series defect learn how to do these things, but at a much later date. A series defect may seriously interfere with a child's ability to perform tasks that require things to have a certain order, such as setting the table. We considered this defect to be quite separate from a temporal defect.

Temporal Defect

The concept of first and last may be confused in a temporal defect. When a child was asked when he last saw his friend, he told when he first saw him. Clinically, it was noted that a child with a temporal defect would learn to tell time at a later age. He was unable to give the complete date, (day of week, month date and year), at the expected age, since a dyslexic's temporal sense developed slowly.

Speech Defect

The child's ability to pronounce certain sounds was impaired. This usually cleared with age, but it can continue in some adults if they have been allowed to grow up untreated. A speech defect had to be differentiated from the effect of a foreign language being spoken in the

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home, or from speech problems due to emotional immaturity and from those resulting from physical malformations. In the true speech defect of dyslexia, the child's inability to pronounce a sound was consistently present; whereas, in emotionally immature speech the inability came and went. Slurring of the speech might be due to dyslexia or to physical defects. The order of speech might be bizarre. There might be difficulty with word finding – there was not the complete inability to say a word as in true aphasia, but rather a groping for a known word. Everyone has this problem to a degree; but these children have it to an even greater extent. They frequently use a short phrase instead of a word, such as "the man who brings the mail," for "postman." Aphasia might be part of a speech defect but was more often due to a more specific neurological lesion. Difficulty saying multisyllable words might also be present. The sounds of the syllables often ran together or were mispronounced even though the child could pronounce each syllable separately. Stuttering should not be included in this defect.

Spatial Defect

This defect was tested by the Bender-Gestalt Test. The child showed more than the expected number of neurological signs as described by Koppitz. Unfortunately, many statistical studies have shown that this test does not seem to be related to dyslexia to a significant degree. However, we wanted to ascertain if positive findings on this test were related to scholastic problems.

Statistical Survey

Although all ten clinical items were compared statistically with the entire set of thirty scholastic measurements, no differences were considered significant unless the comparison showed a X^2 of 4.2 or over, or the difference of the means was greater than three times the probably error. For the sake of brevity, no statistically insignificant items were mentioned. This meant that all statistics included have less than a 4 percent possibility of being due to chance. A correction factor was used in reference to all samples of fifteen or less. Several comparative studies were made on the entire Campus school population.

One study was made between those children who were diagnosed dyslexic by our clinical team of psychiatrist, psychologist and social worker and those children who were not so diagnosed. This was compared with the findings of the educational diagnostic team.

Two studies were made on separate groups of children who are thought more likely to be suffering from problems of anxiety (children from broken homes and those with the more serious types of psychiatric diagnoses such as schizophrenia, psychoneurosis and psychophysiological disease). Many authors have suggested that anxiety is a major cause of dyslexia. We hoped to show significant findings in this area.

Another study was made on those children who showed neurological signs by the Koppitz method on the Bender-Gestalt Test. This has been considered an excellent means of determining the presence of dyslexia. It was hoped that such a comparison would show the effectiveness of this test.

An additional comparison was made between those children who have the four cardinal defects believed by the authors to be diagnostic in dyslexia. It was hoped that this comparison would show the effectiveness of these tests as diagnostic tools in dyslexia.

Diagnostically, the children were divided into two major groups: those who withdrew, and those who acted out. The children who withdrew could be included in the diagnoses of Withdrawing Reaction of Childhood or Adolescence and Schizoid Personality. Those children who acted out were usually found in the categories of Unsocialized Aggressive Reaction, Group Delinquent Reaction and Anti-Social Personality. Both groups were compared on the results of their school experience with those who did not have these diagnoses.

These comparative studies were made in regard to the Durrell Analysis of Reading Difficulty, the Metropolitan or Iowa Tests of Achievement, the behavior rating scales of the children in the Campus school as recorded by each teacher who has contact with a student, and the diagnostic formulations of the remedial reading teacher in regard to the same students.

These diagnostic formulations were:

The student has a tendency to repeat words in oral reading.

Makes inappropriate lip movements.

Has trouble recalling what he has read, aided or unaided.

Omits words.

The behavior rating scales include fourteen items. Each item was described. (i.e., Cheats – children who have been caught cheating, trouble in comprehension – those children who can't recall what they have read.) Other items on the checklist – student needs step by step instruction, is confused in class, dawdles, annoys others, is stubborn, is settled and cooperative, observes the rules, is easily discouraged, has temper tantrums, complains frequently, is quarrelsome.

Before going on to these major studies, a few observations should be made.

Our first concern was how much unsuspected characterological divergences were going to influence our findings. We therefore examined several easily studied variables such as sex, age and IQ, and found only a minimal number of significant differences reported below.

The dyslexic group had an average IQ of 89 while the rest of the students in the Campus school had a mean IQ of 94. Although this difference might be of importance, this difference in IQ did not meet the standards of difference considered significant in this paper. This might in part be explained by the fact that had it been the Sweetser admission practice to admit children having a diagnosis of dyslexia with slightly lower IQ's than required for other admissions because the Campus school had something special to offer these children.

In the Campus School, 20 boys and 3 girls have dys-

lexia. The non-dyslexia population included 7 boys and 9 girls.

We did study the difference of behavior between boys and girls in the classroom and it was found that boys are more easily discouraged than girls.

Easily Discouraged

	Yes_2	No_2
Boys	14	13
Girls	2	10

$X^2 = 4.2$

There were no significant differences in age between the two groups.

Results

Comparative Study #1

Twenty-three children were diagnosed dyslexic by the clinic team. These were compared to the non-dyslexics, in the various areas of school functioning. In the statistics that follow, M_1 was considered the Mean of the study group (dyslexic children) and M_2 the Mean of the control group (non-dyslexic children). Yes_1 referred to children who have dyslexia; No_1 to children who did not. Yes_2 referred to children who had the various problems in function in the school area that were studied, i.e., cheating; No_2 to the children who did not.

Durrell Analysis of Reading Difficulty

	M_1	M_2	Diff.	3xPE
Oral reading	62% of expected ach*	81%	19%	11%
Silent reading	59%	73%	14%	12%
Listening comprehension	53%	77%	24%	10%
Word recognition	56%	86%	30%	14%
Visual memory	52%	79%	27%	14%
Phonics	62%	81%	19%	11%
Spelling	48%	72%	24%	12%

Metropolitan Achievement Test

	M_1	M_2	Diff	3xPE
Spelling	6.5 %ile	23.8 %ile	17.3 %ile	15 %ile
Reading	8.0 %ile	25.3 %ile	17.3 %ile	10.5 %ile

Classroom Observations

Cheats

	Yes_2	No_2
Yes_1	0	23
No_1	3	13

$X^2 = 4.6$

Needs step by step instruction

	Yes_2	No_2
Yes_1	20	3
No_1	7	9

$X^2 = 8.2$

Confused

	Yes_2	No_2
Yes_1	18	5
No_1	6	10

$X^2 = 6.6$

These figures suggested that dyslexic children have trouble in all areas of the Durrell Analysis of Reading Difficulty and in the area of reading and spelling on the Metropolitan Achievement Test. In the area of classroom behavior, those children who were dyslexic cheat less, but were more apt to need step by step instruction, and were more apt to be confused.

Comparative Study #2

Children from broken homes were studied and compared with those who do not come from broken homes. We define a broken home as one in which either parent is absent because of death, divorce, separation or prolonged illness (over a year and at present), illegitimate birth or commitment to the State for neglect. There were 28 children in the Campus School from broken homes: 14 divorces, 2 illegitimate births, 3 separations, 3 deaths, 1 mental illness and 5 committed to the State for non support.

A tendency to repeat words in oral reading

	Yes_2	No_2
Yes_1	15	13
No_1	13	2

$X^2 = 4.7$

Have trouble recalling what they have read

Unaided

	Yes_2	No_2
Yes_1	8	20
No_1	10	5

$X^2 = 5.8$

Aided

	Yes_2	No_2
Yes_1	5	23
No_1	8	7

$X^2 = 8.4$

Make inappropriate lip movements

	Yes_2	No_2
Yes_1	6	22
No_1	8	7

$X^2 = 4.5$

Dawdling

	Yes_2	No_2
Yes_1	8	13
No_1	12	4

$X^2 = 4.9$

Annoying others

	Yes_2	No_2
Yes_1	12	9
No_1	2	14

$X^2 = 7.7$

Stubborn

	Yes_2	No_2
Yes_1	14	7
No_1	3	13

$X^2 = 8.4$

From these figures, it would seem that children from broken homes had less trouble in the area of reading but more trouble with emotional problems. They were more apt to be annoying and stubborn. Children from intact homes had a tendency to repeat words when reading aloud whether their recall was aided or unaided. They also show inappropriate lip movements while reading and have a tendency to dawdle.

Comparative Study #3

One would expect to find more anxiety in children who were given the more serious diagnoses such as schizophrenia, psychophysiological disease, psychosomatic illness or neuroses. There were 8 such children in the Campus School; two were schizophrenic, 2 had psychophysiological disease and 4 were psychoneurotic.

* % of expected achievement may be computed by dividing the actual achievement in years and months, expressed in decimals, by the expected achievement at his age. The whole number in the expected achievement would be his age on October 15 of the school year minus 5. The decimal would be the school month in which the test was done.

It could be true that these children were not able to think clearly and therefore had trouble concentrating well enough to do good work in school. In this case, there was evidence that these children do badly in school.

DURRELL ANALYSIS OF READING DIFFICULTY

Spelling M_1	M_2	Diff.	3XPE	(corrected for small sample)
56% of expected achievement	75%	19%	16%	

Omits words

	Yes_2	No_2
Yes_1	6	0
No_1	17	19

$X^2 = 5.8$

These children had some difficulty in school work, but certainly not to the extent found in our dyslexic population. It was the authors' feeling that this difficulty might be caused by another type of school problem related to the severity of the child's emotional illness.

COMPARATIVE STUDY #4

In the case of those children who had a Withdrawn Reaction of Childhood or Adolescence, or a Schizoid Personality, it was found that two demonstrable differences did exist in classroom behavior. Nineteen children were included in this group.

Settled and quiet in class

	Yes_2	No_2
Yes_1	15	4
No_1	6	14

$X^2 = 9.4$

Errors in reading easy words

	Yes_2	No_2
Yes_1	9	10
No_1	4	19

$X^2 = 4.4$

The fact that the withdrawn children are quieter than the rest of the class merely confirms the diagnostic opinion. The errors found in reading easy words would again show that emotions do effect reading to a slight degree.

COMPARATIVE STUDY #5

In the case of children who had a diagnosis in which acting out was an expected part of their behavior (the Unsocialized Aggressive Reaction of Childhood or Adolescence, the Group Delinquent and the Asocial Personality), there were two statistically significant differences in classroom behavior. Twenty-eight children were included in this group.

Cooperative

	Yes_2	No_2
Yes_1	12	16
No_1	7	1

$X^2 = 4.5$

Observes the rules of the school

	Yes_2	No_2
Yes_1	11	17
No_1	8	0

$X^2 = 9.7$

The fact that these children were uncooperative and did not obey the rules of the School would again only corroborate the diagnosis given them and appears to have nothing to do with the difficulty in school achievement.

COMPARATIVE STUDY #6

There were twenty-two children who had at least one standard deviation more than the average number of neurological signs on the Bender-Gestalt scored according to Koppitz. A comparison was made between these children and those who did not have neurological signs. All children who had each variety of neurological signs were studied separately and compared with children who did not have these particular signs, i.e., distortion, integration, rotation and repetition.

In the group of children who had a significant total number of signs, there were the following positive findings.

Has difficulty reading new words

	Yes_2	No_2
Yes_1	10	12
No_1	2	19

$X^2 = 6.8$

Makes errors on easy words

	Yes_2	No_2
Yes_1	10	12
No_1	4	17

$X^2 = 5.2$

Makes inappropriate lip movements

	Yes_2	No_2
Yes_1	10	12
No_1	4	17

$X^2 = 5.2$

When all the neurological signs were individually studied, only the area of distortion showed a significant difference.

Comprehension

	Yes_2	No_2
Yes_1	14	23
No_1	6	0

This demonstrated that the Bender-Gestalt measured to a minor degree something that interferes with a childs' school achievement.

COMPARATIVE STUDY #7

In this study, those children who had series, place, time or speech defect were compared with the children who didn't. Eighteen children had place defect, nineteen had series defect, nineteen had time defect and twenty had speech defect. No study was made of the ten children who had all four defects at the same time, due to the small size of the sample. The following findings were noted.

DURRELL ANALYSIS OF READING DIFFICULTY

	M_1	M_2	Diff.	3xPE
Series	65% of expected achievement	85%	20%	13%
Speech	61%	82%	21%	10%
Time	63%	79%	16%	12%

SILENT READING

Series	60%	78%	18%	18%
Time	58%	74%	16%	12%

LISTENING COMPREHENSION

(no significant figures)

Word Recognition

	M_1	M_2	Diff.	3xPE
Series	61%	90%	29%	10%
Speech	56%	84%	28%	13%
Time	61%	79%	18%	14%
Series	53% of expected achievement	89%	36%	10%
Speech	51%	83%	32%	9%
Time	54%	77%	33%	9%

Word Analysis

Series	60%	90%	30%	10%
Speech	56%	84%	28%	13%
Time	60%	79%	19%	12%

Phonics

Series	64%	89%	25%	11%
Speech	55%	83%	28%	13%
Time	65%	79%	14%	14%

Spelling

Place	51%	66%	15%	12%
Series	51%	85%	34%	10%
Speech	48%	82%	34%	10%
Time	52%	68%	16%	12%

Metropolitan Achievement

Reading

	M_1	M_2	Diff.	3xPE
Series	8.5%ile	27.8%ile	19.3%ile	15.3%ile
Speech	6.8%ile	24.7%ile	17.9%ile	12.3%ile
Time	5.8%ile	25.0%ile	19.2%ile	9.9%ile

Spelling

Series	8.8%ile	27.2%ile	18.4%ile	13.2%ile
Speech	6.8%ile	24.0%ile	16.4%ile	12.9%ile
Time	6.9%ile	24.1%ile	17.2%ile	11.4%ile

Arithmetic

Speech	9.0%ile	15.1%ile	6.1%ile	4.5%ile
Time	8.8%ile	15.9%ile	7.1%ile	5.7%ile

From classroom observation, it was found that there were several important differences between the children who had these problems and those who did not.

Difficulty in Comprehension

Place

	Yes_1	No_1
Yes_2	4	16
No_2	14	9

$X^2 = 6.0$

Series

	Yes_1	No_1
Yes^2	9	3
No_2	10	20

$X^2 = 6.0$

Time

	Yes_1	No_1
Yes_2	6	7
No_2	13	7

$X^2 = 6.5$

Easily discouraged

Place

	Yes_1	No_1
Yes_2	16	6
No_2	2	15

$X^2 = 14.3$

Speech

	Yes_1	No_1
Yes_2	15	7
No_2	5	12

$X^2 = 5.7$

Time

	Yes_1	No_1
Yes_2	18	4
No_2	5	12

$X^2 = 10.9$

Step-by-step instruction needed

Place

	Yes_1	No_1
Yes_2	21	6
No_2	5	7

$X^2 = 4.8$

Time

	Yes_1	No_1
Yes_2	20	7
No_2	2	10

$X^2 = 11.1$

Confused

Place

	Yes_1	No_1
Yes_2	20	4
No_2	6	7

$X^2 = 5.5$

Speech

	Yes_1	No_1
Yes_2	17	6
No_2	5	10

$X^2 = 6.1$

Time

	Yes_1	No_1
Yes_2	18	6
No_2	5	10

$X^2 = 6.6$

There are also items that show that dyslexic children are better behaved than non-dyslexic children.

Temper Tantrums

Speech

	Yes_1	No_1
Yes_2	20	15
No_2	0	4

$X^2 = 4.7$

Time

	Yes_1	No_1
Yes_2	23	12
No_2	0	4

$X^2 = 6.3$

Complains

Time

	Yes_1	No_1
Yes_2	4	6
No_2	22	7

$X^2 = 4.2$

Series

	Yes_1	No_1
Yes_2	1	6
No_2	25	7

$X^2 = 10.5$

Quarrelsome

Series

	Yes_1	No_1
Yes_2	4	7
No_2	22	6

$X^2 = 6.3$

These four defects collectively seemed strongly related to poor achievement in reading and spelling. Place defect seemed to have the least effect but is related to poor spelling. Speech and time also seemed to effect arithmetic. Interestingly, they all seemed not to effect comprehension in reading. Children who had these problems need step-by-step instruction; they were easily discouraged and confused. This might be the result of constant failure in school. Otherwise, there seemed to be a few less emotional symptoms in children with these defects than in children who did not have them.

Discussion

The above findings would certainly make one feel encouraged to believe that the entity called dyslexia does exist, that children who have this disease do very poorly in certain areas of learning. Even though they are able to learn a specific assignment for the moment, it was often forgotten a week later. Forgetting and other learn-

Continued on Page 73



CALORIES / 1 Cup Prepared Soup*

Beef Broth	25	Vegetable	77
Consomme	33	Tomato	79
Chicken with Rice	49	Cream of Asparagus	80
Chicken Gumbo	55	Cream of Chicken	87
Chicken Noodle	62	Beef	99
Chicken Vegetable	68	Cream of Potato	105
Turkey Noodle	72	Cream of Mushroom	131
Vegetable Beef	75	Green Pea	131

In planning high or low calorie diets, Campbell's more than 50 different soups offer you a wide choice. And, most of Campbell's Soups contain a wide variety of ingredients that can serve as supplementary sources of many essential nutrients.

* From "Nutritive Composition of Campbell's Products" which gives values of important nutritive constituents of all Campbell's Products. For your copy, write to Campbell Soup Company, Dept. 536, Camden, New Jersey 08101.

There's a soup for almost every patient and diet ...for every meal and, it's made by Campbell

the 3 phases of Eve



All women are not equal in their endogenous hormonal output. And, while all oral contraceptives are fundamentally effective, they exhibit **differences in their activity levels and estrogen-progestogen ratios that affect different women differently**—in both short and long-term use. Some brands may be insufficient for the woman's needs or else may exceed them.

Searle offers a family of O.C. products that covers the range of women's needs to help you provide the right pill for the right woman at the right time.

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the Ovulen phase

Most women* with a **balanced hormone profile ar normal menses** do best on a middle-of-the-road pi that is neither estrogen dominant nor strongly progestogen dominant.

(*Typical clues—normal body build and breasts, feminine appearance, healthy skin and hair. Vagina cytology slide—balanced "pink and blue.")

Some women having problems on other O.C.s might do well on Ovulen.

Ovulen has a distinctive hormonal balance that combines moderate estrogenic activity with a slig progestogen dominance. It has an excellent recor of patient acceptance.

Ovulen®

Each white tablet contains: ethynodiol diacetate 1 mg./mestranol 0.1 mg.

SEARLE

For brief summary of prescribing information see following page.



the Demulen phase

Many women* who secrete **more estrogen** than most do well on a pill with lower estrogen activity and an increased progestogen overbalance.

(*Typical clues—shorter, plumper, full-breasted, with glowing skin and no wrinkles. Vaginal cytology slide "pink.")

Some women with special conditions that may be aggravated by higher estrogen-activity products may do better on this ratio.

Demulen combines minimal estrogenic activity with a moderate ratio of progestogen overbalance. It is particularly well suited to the young when low-dose (activity) is preferred. Demulen offers little risk of the most potent progestogen side effects; early breakthrough bleeding is often transient.

Demulen®

Each white tablet contains: ethynodiol diacetate 1 mg./ethinyl estradiol 50 mcg
Each pink tablet in Ovulen-28* and Demulen*-28 is a placebo, containing no active ingredients.
Both Ovulen and Demulen are available in 21- and 28-pill schedules.

the Enovid-E phase

Some women* who secrete **less estrogen** than most do best on a pill with a moderate estrogen overbalance.

(*Typical clues—oily complexion, acne, hirsutism, masculinity, flat chest. Vaginal cytology slide—"blue.")

Patients with estrogen deficiency may show:

premenopausal syndrome
early-cycle bleeding
scanty menses
intermittent depression
increased appetite
steady weight gain
vaginal candidiasis

Enovid-E not only provides increased estrogenic activity with low progestogen activity, but also contains the only progestogen that is not antiestrogenic. Therefore it offers less risk of high-dose progestogen side effects.

Enovid-E®

Each tablet contains: norethynodrel 2.5 mg./mestranol 0.1 mg.

Oral contraceptives are complex medications and, after reference to the prescribing information, should be prescribed with discriminating care.

for the 3 phases of Eve:

a family of O.C. products

Ovulen®

Each white tablet contains:
ethynodiol diacetate 1 mg./mestranol 0.1 mg.

Demulen®

Each white tablet contains:
ethynodiol diacetate 1 mg./ethinyl estradiol 50 mcg.

Each pink tablet in Ovulen-28® and Demulen®-28 is a placebo, containing no active ingredients.

Actions—Ovulen and Demulen act to prevent ovulation by inhibiting the output of gonadotropins from the pituitary gland. Ovulen and Demulen depress the output of both the follicle-stimulating hormone (FSH) and the luteinizing hormone (LH).

Special note—Oral contraceptives have been marketed in the United States since 1960. Reported pregnancy rates vary from product to product. The effectiveness of the sequential products appears to be somewhat lower than that of the combination products. Both types provide almost completely effective contraception.

An increased risk of thromboembolic disease associated with the use of hormonal contraceptives has now been shown in studies conducted in both Great Britain and the United States. Other risks, such as those of elevated blood pressure, liver disease and reduced tolerance to carbohydrates, have not been quantitated with precision.

Long-term administration of both natural and synthetic estrogens in subprimate animal species in multiples of the human dose increases the frequency of some animal carcinomas. These data cannot be transposed directly to man. The possible carcinogenicity due to the estrogens can be neither affirmed nor refuted at this time. Close clinical surveillance of all women taking oral contraceptives must be continued.

Indication—Ovulen and Demulen are indicated for oral contraception.

Contraindications—Patients with thrombophlebitis, thromboembolic disorders, cerebral apoplexy or a past history of these conditions, markedly impaired liver function, known or suspected carcinoma of the breast, known or suspected estrogen-dependent neoplasia and undiagnosed abnormal genital bleeding.

Warnings—The physician should be alert to the earliest manifestations of thrombotic disorders (thrombophlebitis, cerebrovascular disorders, pulmonary embolism and retinal thrombosis). Should any of these occur or be suspected the drug should be discontinued immediately.

Retrospective studies of morbidity and mortality conducted in Great Britain and studies of morbidity in the United States have shown a statistically significant association between thrombophlebitis, pulmonary embolism, and cerebral thrombosis and embolism and the use of oral contraceptives. There have been three principal studies in Britain[1-3] leading to this conclusion, and one[4] in this country. The estimate of the relative risk of thromboembolism in the study by Vessey and Doll[3] was about sevenfold, while Sartwell and associates[4] in the United States found a relative risk of 4.4, meaning that the users are several times as likely to undergo thromboembolic disease without evident cause as nonusers. The American study also indicated that the risk did not persist after discontinuation of administration and that it was not enhanced by long-continued administration. The American study was not designed to evaluate a difference between products. However, the study suggested that there might be an increased risk of thromboembolic disease in users of sequential products. This risk cannot be quantitated, and further studies to confirm this finding are desirable.

Discontinue medication pending examination if there is sudden partial or complete loss of vision, or if there is a sudden onset of proptosis, diplopia or migraine. If examination reveals papilledema or retinal vascular lesions medication should be withdrawn.

Since the safety of Ovulen and Demulen in pregnancy has not been demonstrated, it is recommended that for any patient who has missed two consecutive periods pregnancy should be ruled out before continuing the contraceptive regimen. If the patient has not adhered to the prescribed schedule the possibility of pregnancy should be considered at the time of the first missed period.

A small fraction of the hormonal agents in oral contraceptives has been identified in the milk of mothers receiving these drugs. The long-range effect to the nursing infant cannot be determined at this time.

Precautions—The pretreatment and periodic physical examinations should include special reference to the breasts and pelvic organs, including a Papanicolaou smear since estrogens have been known to produce tumors, some of them malignant, in five species of subprimate animals. Endocrine and possibly liver function tests may be affected by treatment with Ovulen or Demulen. Therefore, if such tests are abnormal in a patient taking Ovulen or Demulen, it is recommended that they be repeated after the drug has been withdrawn for two months. Under the influence of progestogen-estrogen preparations preexisting uterine fibromyomas may increase in size. Because these agents may cause some degree of fluid retention, conditions which might be influenced by this factor, such as epilepsy, migraine, asthma, cardiac or renal dysfunction, require careful observation. In breakthrough bleeding, and in all cases of irregular bleeding per vaginam, nonfunctional causes should be borne in mind. In undiagnosed bleeding per vaginam adequate diagnostic measures are indicated. Patients with a history of psychic depression should be carefully observed and the drug discontinued if the depression recurs to a serious degree. Any possible influence of prolonged Ovulen or Demulen therapy on pituitary, ovarian, adrenal, hepatic or uterine function awaits further study. A decrease in glucose tolerance has been observed in a significant percentage of patients on oral contraceptives. The mechanism of this decrease is obscure. For this reason, diabetic patients should be carefully observed while receiving Ovulen or Demulen therapy. The age of the patient constitutes no absolute limiting factor, although treatment with Ovulen or Demulen may mask the onset of the climacteric. The pathologist should be advised of Ovulen or Demulen therapy when relevant specimens are submitted. Susceptible women may experience an increase in blood pressure following administration of contraceptive steroids.

Adverse reactions observed in patients receiving oral contraceptives—A statistically significant association has been demonstrated between use of oral contraceptives and the following serious adverse reactions: thrombophlebitis, pulmonary embolism and cerebral thrombosis.

Although available evidence is suggestive of an association, such a relationship has been neither confirmed nor refuted for the following serious adverse reactions: neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis.

The following adverse reactions are known to occur in patients receiving oral contraceptives: nausea, vomiting, gastrointestinal symptoms (such as abdominal cramps and bloating), breakthrough bleeding, spotting, change in menstrual flow, amenorrhea during and after treatment, edema, chloasma or melasma, breast changes (tenderness, enlargement and secretion), change in weight (increase or decrease), changes in cervical erosion and cervical secretions, suppression of lactation when given immediately post partum, cholestatic jaundice, migraine, rash (allergic), rise in blood pressure in susceptible individuals and mental depression.

Although the following adverse reactions have been reported in users of oral contraceptives, an association has been neither confirmed nor refuted: anovulation post treatment, premenstrual-like syndrome, changes in libido, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, fatigue, backache, hirsutism, loss of scalp hair, erythema multiforme, erythema nodosum, hemorrhagic eruption and itching.

The following laboratory results may be altered by the use of oral contraceptives: hepatic function: increased sulfobromophthalein retention and other tests; coagulation tests: increase in prothrombin, Factors VII, VIII, IX and X; thyroid function: increase in PBI and butanol extractable protein bound iodine and decrease in T^3 uptake values; metyrapone test and pregnanediol determination.

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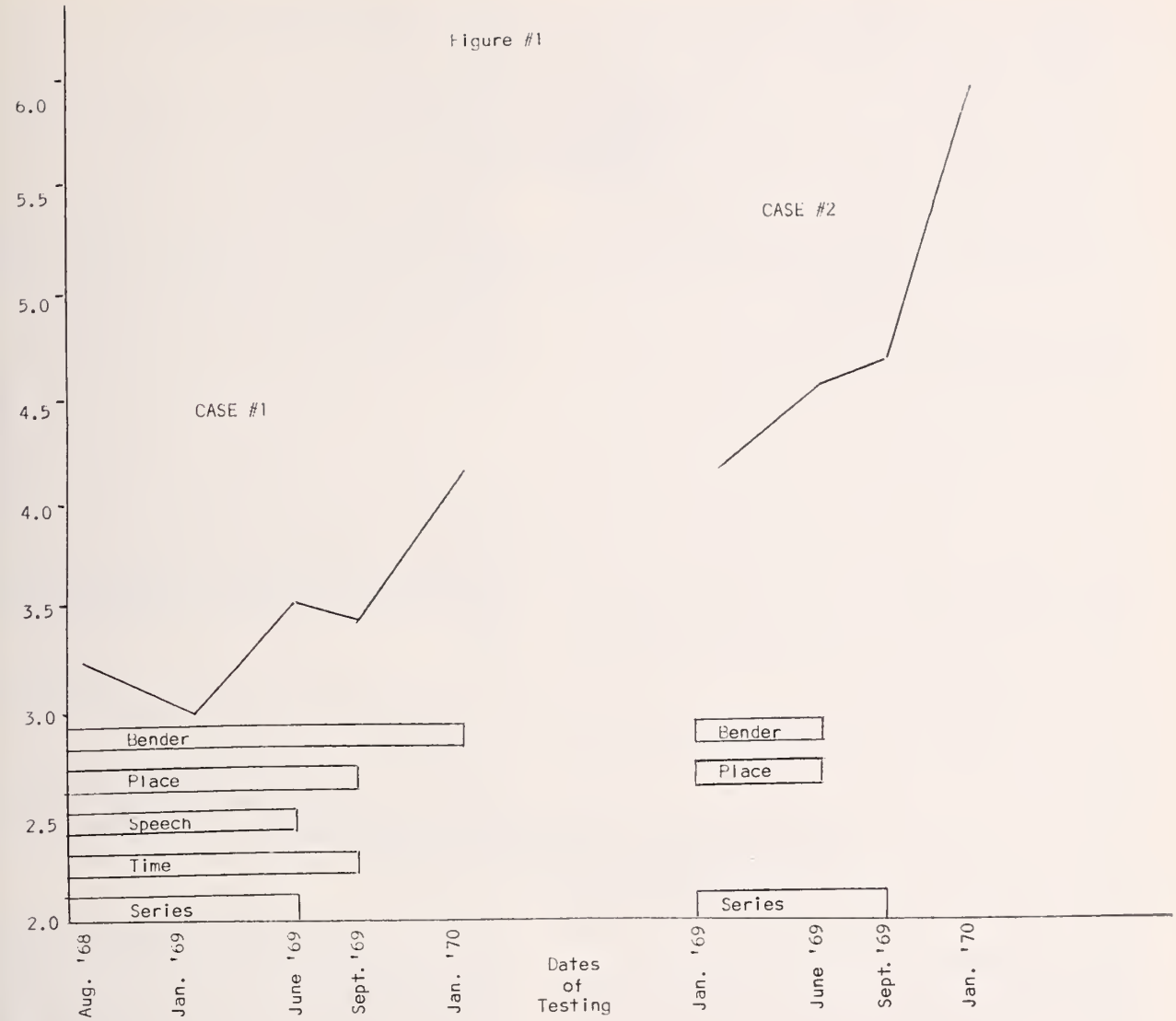
Indication—Enovid-E is indicated for oral contraception.

The *Special Note, Contraindications, Warnings, Precautions* and *Adverse Reactions* listed above for Ovulen and Demulen are applicable to Enovid-E and should be observed when prescribing Enovid-E.

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Where "The Pill" Began



ing problems continue to exist and interfere with a child's learning ability until the psychological defects described in the body of this paper disappear. The child then begins to learn rapidly and retain what he learns. A demonstration of this may be found by graphing the child's achievement throughout the years and noting at what time the psychological defects disappear. Two such examples are demonstrated graphically (See Figure 1). It was noted in both cases that as the psychological defects disappear the child was able to learn at a much greater rate than he had up to this point.

The child's composite achievement was charted against time. It will be noted that in the first case increased achievement reverses itself during the summer vacation. Often this loss of achievement was extreme amounting to almost the entire gain the preceding school year. In the second case, there isn't a loss of achievement. Both of these children received minimal tutoring in reading, spelling, etc. during the summer, of about one to two hours weekly. It has been our experience that more teaching causes severe discouragement and loss of interest, and effects the child's entire working ability throughout the next year.

If these findings can be corroborated, they would certainly suggest that there was a cause and effect relationship between the psychological defects described and poor achievement in school, and that the diagnostic entity of dyslexia does exist.

Conclusion

1. A diagnosis of dyslexia can be made that divides learners from some non-learners of adequate intelligence.
2. Psychiatric diagnostic entities included in this paper effect learning ability to only a minor degree.
3. Emotional deprivation found in a broken home does not appear to be related to learning disability.
4. The Bender-Gestalt Test is a very poor measure of learning disability.
5. Series, speech, time and place defects are related to children's learning problems.

6. Children with dyslexia appear to become easily discouraged and need step-by-step instruction.
7. Children diagnosed Withdrawn Reaction of Childhood or Adolescence, and Schizoid Personality are more withdrawn than others. However, the diagnosis has little significance in the area of learning difficulties.
8. Children diagnosed Unsocialized Aggressive Reaction, Group Delinquent Reaction, and Asocial Personality are uncooperative and more unruly. There is no connection between the diagnoses and learning difficulties.

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PRACTICES IN PEDIATRICS – SCIENCE OR MYTH? — *Continued from Page 66*

greater weight is reached.

Most practitioners see the possibility of benefit to infant, family and hospital if discharge could be effected earlier. Only 11 practitioners (11%) could see no reason for altering existing practices.

It is of considerable interest that 20 (20%) of the respondents believe that they would be breaking a law or regulation should they discharge such an infant weighing less than 5 lbs.

Our studies reported elsewhere are strongly indicative that there is no increased risk of illness, no increased rate of rehospitalization and no serious family stress if these infants are discharged, regardless of weight, as soon as they and their homes meet other criteria. We feel that it is clearly time to revise our thinking and our practice in this regard. The psychological and economic benefits can be enormous and pediatric practice will be one more step ahead in supplanting myth with science.

SUMMARY

Telephone interviews with 102 pediatricians responsible for the care of low-birth-weight infants revealed that 74 (73%) determined discharge from nurseries on the basis of an attained weight of not less than 5 lbs. In doing so, they are following tradition and custom based on the undocumented premise that these infants are at increased risk of illness if sent home before reaching this weight.

Our studies have shown no increased risk for the infants and no major familial problems if these infants are discharged as soon as specified criteria are met and without regard to the infant's weight.

Benefits and advantages of decreasing the hospital stay of these infants are recognized by most pediatricians and these are such that traditional and customary practices should be revised.

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A Striking Therapeutic Result

A Case Report of Poison Ivy

MELVIN BACON, M.D.
Sanford, Maine

A 44-year-old well developed and nourished white female came into my office with an edematous and closed left eye. In addition, there was a reddened papular itchy rash all over the left side of her face. There was an oozing vesicular area under the chin and all over the left side of her neck. She had been in contact with poison ivy 24 hours previously while working in the garden. She had rubbed her eye and face. The diagnosis was quite obvious, namely, a contact dermatitis (poison ivy).

She was immediately given 40 units of ACTH GEL intramuscularly. In addition, she was given Valisone® Cream 0.1% to apply to her face and neck, especially to the weeping areas, and also 12.5 mg. of Phenergan® p.o. four times a day and was asked to return the next day. At this time, 40 units of ACTH GEL were again administered intramuscularly and Caladryl lotion applied. The lesions had improved considerably. This patient was seen again on the third consecutive day. The affected areas had all cleared with the oozing completely gone and the left eye entirely open. She was given 40 units of ACTH GEL intramuscularly again and was told to continue the Phenergan for two more days and was discharged. She was also told to report back if she had any recurrence. This condition had cleared so remarkably that she attended a wedding on the third day, which, at the onset, she thought she would not be able to attend.

Because of the results in this case of poison ivy, it was deemed of interest to present the method used and the results obtained.

Report of AMA Delegate

GEORGE W. WOOD, III, M.D.

This year, the Fall Clinical Session of the American Medical Association House of Delegates was held in New Orleans from November 28 to December 1. Your delegate attended sans alternate delegate. As a matter of fact, aside from our corpulent executive, no other Maineiac was present.

The interest in this meeting centered on the address of AMA President, Wesley Hall, M.D. His speech of December followed up the one of June in which he rendered opinions about the difficulties facing the organization. His report was discussed for three hours before a reference committee. This committee's rather long-winded report led to recommendation for simple referral. However, the Maine delegate and many others felt this an inadequate reponse. The Wisconsin delegation proposed an amendment. It requests the Committee on Long-Range Planning to report to the House at 6-month intervals for the next three sessions. This committee on Long-Range Planning will hear the comments of all concerned about the function of the AMA. Your delegate plans to present his experiences and attitudes at the meeting in San Francisco.

It is my feeling that there are some organizational difficulties; however, not to the extent suggested by Dr. Hall. In particular, the staff function and moral seems good. I believe a good part of wasted effort and funds may be dependent on the committee structure which leads to some reduplication. There are 66 councils and committees within the AMA House of Delegates and Board of Trustees. These comprise roughly 600 physician members.

But to leave on a more positive note, I was most pleased to see the House of Delegates insist that there be a section created for medical students and another for house officers. This would give these groups two official delegates. Obviously, four young physicians or medical students are not going to "take over" an AMA House of Delegates consisting of 246 middle-age males.

In closing, may I say the "room and board" in New Orleans was quite good. Some of my sophisticated New England delegate friends took me to the best eating places in town.

Thanks for allowing me to be your delegate again.

Reserve these dates . . . June 11, 12, 13, 1972

119th Annual Session
Maine Medical Association
The Colony, Kennebunkport, Maine

Sunday, June 11

- House of Delegates all day
- Lobster Bake

Monday, June 12

- General Scientific Session
- Specialty Groups
 - Maine Trauma Committee
 - Maine Society of Internal Medicine
 - Maine Chapter, American Academy of Pediatrics
 - Section on Ophthalmology of the M.M.A.
 - Maine Academy of Orthopedic Surgeons
 - Maine Psychiatric Association

Tuesday, June 13

- General Scientific Session
- Specialty Groups
 - Maine Medico-Legal Society
 - Maine Society of Anesthesiology
 - Maine Radiological Society

Monday evening
Annual Banquet

Tuesday evening
Golf Prizes

Check These Dates Now

Maine Heart Association Notes
20 Winter Street, Augusta, Maine

The Stokes-Adams Syndrome Definition and Etiology — Part I

Robert A. O'Rourke, M.D.*

The Stokes-Adams syndrome is defined as an abrupt, transient loss of consciousness due to a sudden but pronounced decrease in the cardiac output, which is caused by a sudden change in the heart rate or rhythm. This definition does not include vasovagal syncope or epilepsy although patients with Stokes-Adams syncope may have seizures during periods of cerebral ischemia. Although partial or complete heart block is usually present during asymptomatic periods, many arrhythmias may produce syncopal episodes with or without the presence of previously established complete heart block. "Arrhythmia-induced Syncope" is a more specific term and includes the primary cause of the decreased cerebral blood flow.

Clinical Features

The clinical manifestations of arrhythmia-induced syncope depend upon the duration and type of underlying arrhythmia as well as the status of the cerebral circulation. Symptoms of arrhythmia-induced syncope vary from slight faintness to loss of consciousness, with or without convulsions.

Characteristically, during the attack there is an initial pallor. Following resumption of the normal circulation, there is usually a facial flush due to reactive hyperemia. The absence of an aura tends to separate seizures occurring during Stokes-Adams syncope from seizures of primary cerebral origin. Stokes-Adams seizures usually commence and terminate abruptly. The patient may resume a previous conversation or activity without being aware of the pause produced by the period of arrhythmia-induced cerebral ischemia. A slow or very rapid pulse during the period of unconsciousness points toward the correct diagnosis. Electrocardiographic monitoring during a syncopal episode demonstrates the responsible rhythm and makes appropriate therapy possible.

Etiology

Since most patients with arrhythmia-induced syncope have some impairment of atrioventricular (A-V) conduction either during or between attacks, the etiologies of Stokes-Adams syncope are often the causes of complete heart block.

Structural Lesions of the Heart. Approximately 7 percent of the cases of complete heart block in adults are congenital in etiology, with or without associated cardiac defects. Syncopal episodes complicating congenital heart block are uncommon but do occur and may necessitate pacemaker insertion.

Myocarditis of various etiologies may involve the conduction system, resulting in complete heart block and syncopal episodes. Diphtheria has long been known to be associated with conduction defects particularly complete heart block.

Heart block, occasionally with Stokes-Adams Syncope, has been reported during the course of connective tissue disease and in association with degenerative skeletal muscle and nervous system disorders. In valvular heart disease, valve calcification or endocarditis may involve the conduction system and produce incomplete or complete heart block.

Acute myocardial infarction is complicated by complete heart block in approximately 2 to 7 percent of cases. Complete heart block complicating inferior wall myocardial infarction usually proves to be transient and restoration of normal conduction occurs within two to three weeks. The conduction defect involves the A-V junctional tissue. When an anterior wall infarction is the cause of complete heart block, the mortality rate is extremely high even with pacemaker insertion. In this situation, the complete heart block is frequently due to extensive myocardial necrosis involving the right bundle and the two divisions of the left bundle (trifascicular block) rather than to a conduction defect in the A-V junction.

In a considerable number of patients, no etiology can be established for complete heart block. Careful pathological examination has shown that many such patients with heart block do not have extensive coronary artery disease but have areas of fibrosis involving the conduction system distal to the common bundle (trifascicular block), either alone or in association with scattered areas of fibrosis throughout the myocardium. In elderly people, this has been attributed to "sclerosis of the left side of the cardiac skeleton" which presumably results from wear and tear due to the repeated pull of the contracting left ventricular musculature.

Primary and metastatic neoplastic disease, metabolic disease and infiltrative disorders of the myocardium may produce heart block. Complete heart block is a potential risk during corrective heart surgery, particularly during repair of ventricular septal

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Prepared by the Maine Heart Association for this Journal.

defects. Surgical heart block frequently reverts to sinus rhythm within three to four weeks following operation. If it continues beyond this period, a permanent pacemaker is usually inserted. Non-penetrating chest injury is an occasional cause of complete heart block.

Heart block has been reported in association with Reiter's Syndrome, amyloidosis, Pagets disease and sarcoidosis. The myocardium is involved in approximately 20 percent of autopsy proven cases of sarcoidosis. Conduction disturbances, Stokes-Adams syncope and sudden death are known to occur in sarcoidosis and this entity is an important consideration in the differential diagnosis of acquired complete heart block in the young adult.

Electrolyte Disorders. Potassium is the most important electrolyte in relation to A-V conduction. Isolated instances of advanced A-V block have occurred in patients during or following the administration of large doses of potassium salts. Hyperkalemia markedly decreases the ventricular rate in preexisting heart block.

Acidosis depresses the ventricular pacemaker in complete heart block and may precipitate Stokes-Adams syncope. Alkalosis, hypokalemia and hypernatremia increase A-V conduction and may reverse heart block. However, alkalosis and hypokalemia may increase ventricular ectopic activity, leading to ventricular tachycardia or fibrillation.

Toxic Effect of Drugs. Digitalis is the drug most frequently responsible for producing complete heart block. Syncopal episodes are uncommon during heart block due to digitalis toxicity because the ectopic pacemaker frequently originates in A-V junctional tissue and the ventricular rate is faster than in complete heart block of other etiology. The supraventricular rhythm in these patients is often atrial fibrillation.

The antiarrhythmic agents, quinidine and procainamide, depress the conduction system as well as pacemaker rhythmicity and are contraindicated in complete heart block. Diphenylhydantoin and Lidocaine may also depress the ectopic pacemaker and are therefore contraindicated in the presence of high degree A-V block. However, any of these antiarrhythmic drugs may be safely employed to suppress premature contractions in the presence of heart block if an adequately functioning electrical pacemaker has been inserted.

(Part II will appear in the May 1972 issue)

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When girth gets out of control, TEPANIL can provide sound support for the weight control program you recommend. TEPANIL reduces the appetite—patients enjoy food but eat less. Weight loss is significant—gradual—yet there is a relatively low incidence of CNS stimulation.

Contraindications: Concurrently with MAO inhibitors, in patients hypersensitive to this drug; in emotionally unstable patients susceptible to drug abuse.

Warning: Although generally safer than the amphetamines, use with great caution in patients with severe hypertension or severe cardiovascular disease. Do not use during first trimester of pregnancy unless potential benefits outweigh potential risks.

Adverse Reactions: Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence. As is characteristic of sympathomimetic agents, it may occasionally cause *CNS effects* such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported. Sympathomimetic *cardiovascular effects* reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this was an isolated experience, which has not been reported by others. *Allergic phenomena* reported include such conditions as rash, urticaria, ecchymosis, and erythema. *Gastrointestinal effects* such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported. Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia. A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

Convenience of two dosage forms: TEPANIL Ten-tab tablets: One 75 mg. tablet daily, swallowed whole, in midmorning (10 a.m.); TEPANIL One 25 mg. tablet three times daily, one hour before meals. If desired, an additional tablet may be given in midevening to overcome night hunger. Use in children under 12 years of age is not recommended.

I-3325 (2876)

Merrell

MERRELL-NATIONAL LABORATORIES
Division of Richardson-Merrell Inc.
Cincinnati, Ohio 45215

Painful night leg cramps...



unwelcome bedfellow for any patient– including those with arthritis, diabetes or PVD

- □ Prevents painful night leg cramps
- □ Permits restful sleep
- □ Provides simple convenient dosage — usually just one tablet at bedtime

Prescribing Information—Composition: Each white, beveled, compressed tablet contains: Quinine sulfate, 260 mg., Aminophylline, 195 mg. **Indications:** For the prevention and treatment of nocturnal and recumbency leg muscle cramps, including those associated with arthritis, diabetes, varicose veins, thrombophlebitis, arteriosclerosis and stotic foot deformities. **Contraindications:** Quinamm is contraindicated in pregnancy because of its quinine content. **Precautions/Adverse Reactions:** Aminophylline may produce intestinal cramps in some instances, and quinine may produce symptoms of cinchonism, such as tinnitus, dizziness, and gastrointestinal disturbance. Discontinue use if ringing in the ears, deafness, skin rash, or visual disturbances occur. **Dosage:** One tablet upon retiring. Where necessory, dosage may be increased to one tablet following the evening meal and one tablet upon retiring. **Supplied:** Bottles of 100 and 500 tablets.

Merrell

MERRELL-NATIONAL LABORATORIES 1-3508(3050)
Division of Richardson-Merrell Inc.
Cincinnati, Ohio 45215

Trademark: Quinamm

Quinamm

(quinine sulfate 260 mg., aminophylline 195 mg.)

Specific therapy for night leg cramps.

Mylanta®
24 million hours a day.

Through the day, every day,
ulcer patients take
one million doses of Mylanta
for relief of ulcer pain.



Mylanta®
LIQUID/TABLETS
aluminum and magnesium hydroxides plus simethicone

Good taste = patient acceptance
Relieves G.I. gas distress*
Non-constipating

*with the defoaming action of simethicone

Stuart PHARMACEUTICALS Pasadena, Calif. 91109
Division of Atlas Chemical Industries, Inc., Wilmington, Del. 19899



a new outlook in chronic pain

of moderate to severe intensity

Though Talwin® can be compared to codeine in analgesic efficacy, it is not a narcotic. So patients receiving Talwin for prolonged periods face fewer of the consequences you've come to expect with narcotic analgesics. And that, in the long run, can mean a better outlook for your chronic-pain patient.

Talwin Tablets are:

- **Comparable to codeine in analgesic efficacy:** one 50 mg. Talwin Tablet appears equivalent in analgesic effect to 60 mg. (1 gr.) of codeine. Onset of significant analgesia usually occurs within 15 to 30 minutes. Analgesia is usually maintained for 3 hours or longer.
- **Tolerance not a problem:** tolerance to the analgesic effect of Talwin Tablets has not been reported, and no significant changes in clinical laboratory parameters attributable to the drug have been reported.
- **Dependence rarely a problem:** during three years of wide clinical use, only a few cases of dependence have been reported. In prescribing Talwin for chronic use, the physician should take precautions to avoid increases in dose by the patient and to prevent the use of the drug in anticipation of pain rather than for the relief of pain.
- **Not subject to narcotic controls:** convenient to prescribe – day or night – even by phone.
- **Generally well tolerated by most patients:** infrequently cause decrease in blood pressure or tachycardia; rarely cause respiratory depression or urinary retention; seldom cause diarrhea or constipation. If dizziness, lightheadedness, nausea or vomiting are encountered, these effects tend to be self-limiting and to decrease after the first few doses. (See last page of this advertisement for a complete discussion of adverse reactions and a brief discussion of other Prescribing Information.)

50 mg. Tablets

Talwin®

brand of

pentazocine (as hydrochloride)

the long-range analgesic

a new outlook in chronic pain

of moderate to severe intensity



Contraindications: Talwin, brand of pentazocine (as hydrochloride), should not be administered to patients who are hypersensitive to it.

Warnings: *Head Injury and Increased Intracranial Pressure.* The respiratory depressant effects of Talwin and its potential for elevating cerebrospinal fluid pressure may be markedly exaggerated in the presence of head injury, other intracranial lesions, or a preexisting increase in intracranial pressure. Furthermore, Talwin can produce effects which may obscure the clinical course of patients with head injuries. In such patients, Talwin must be used with extreme caution and only if its use is deemed essential.

Usage in Pregnancy. Safe use of Talwin during pregnancy (other than labor) has not been established. Animal reproduction studies have not demonstrated teratogenic or embryotoxic effects. However, Talwin should be administered to pregnant patients (other than labor) only when, in the judgment of the physician, the potential benefits outweigh the possible hazards. Patients receiving Talwin during labor have experienced no adverse effects other than those that occur with commonly used analgesics. Talwin should be used with caution in women delivering premature infants.

Drug Dependence. There have been instances of psychological and physical dependence on parenteral Talwin in patients with a history of drug abuse and, rarely, in patients without such a history. Abrupt discontinuance following the extended use of parenteral Talwin has resulted in withdrawal symptoms. There have been a few reports of dependence and of withdrawal symptoms with orally administered Talwin. Patients with a history of drug dependence should be under close supervision while receiving Talwin orally.

In prescribing Talwin for chronic use, the physician should take precautions to avoid increases in dose by the patient and to prevent the use of the drug in anticipation of pain rather than for the relief of pain.

Acute CNS Manifestations. Patients receiving therapeutic doses of Talwin have experienced, in rare instances, hallucinations (usually visual), disorientation, and confusion which have cleared spontaneously within a period of hours. The mechanism of this reaction is not known. Such patients should be very closely observed and vital signs checked. If the drug is reinstituted it should be done with caution since the acute CNS manifestations may recur.

Usage in Children. Because clinical experience in children under 12 years of age is limited, administration of Talwin in this age group is not recommended.

Ambulatory Patients. Since sedation, dizziness, and occasional euphoria have been noted, ambulatory patients should be warned not to operate machinery, drive cars, or unnecessarily expose themselves to hazards.

Precautions: *Certain Respiratory Conditions.* Although respiratory depression has rarely been reported after oral administration of Talwin, the drug should be administered with caution to patients with respiratory depression from any cause, severe bronchial asthma and other obstructive respiratory conditions, or cyanosis.

Impaired Renal or Hepatic Function. Decreased metabolism of the drug by the liver in extensive liver disease may predispose to accentuation of side effects. Although laboratory tests have not indicated that Talwin causes or increases renal or hepatic impairment, the drug should be administered with caution to patients with such impairment.

Myocardial Infarction. As with all drugs, Talwin should be used with caution in patients with myocardial infarction who have nausea or vomiting.

Biliary Surgery. Until further experience is gained with the effects of Talwin on the sphincter of Oddi, the drug should be used wi caution in patients about to undergo surgery of the biliary tra

Patients Receiving Narcotics. Talwin is a mild narcotic antagoni Some patients previously receiving narcotics have experienced m withdrawal symptoms after receiving Talwin.

CNS Effect. Caution should be used when Talwin is administer to patients prone to seizures; seizures have occurred in a few su patients in association with the use of Talwin although no cause a effect relationship has been established.

Adverse Reactions: Reactions reported after oral administrati of Talwin include *gastrointestinal:* nausea, vomiting; infrequen constipation; and rarely abdominal distress, anorexia, diarrh *CNS effects:* dizziness, lightheadedness, sedation, euphoria, he ache; infrequently weakness, disturbed dreams, insomnia, synco visual blurring and focusing difficulty, hallucinations (see *Ac CNS Manifestations* under WARNINGS); and rarely tremor, ir tability, excitement, tinnitus. *Autonomic:* sweating; infrequen flushing; and rarely chills. *Allergic:* infrequently rash; and rar urticaria, edema of the face. *Cardiovascular:* infrequently decre in blood pressure, tachycardia. *Other:* rarely respiratory depressi urinary retention.

Dosage and Administration: *Adults.* The usual initial adult dos 1 tablet (50 mg.) every three or four hours. This may be increa to 2 tablets (100 mg.) when needed. Total daily dosage should r exceed 600 mg.

When antiinflammatory or antipyretic effects are desired in ad tion to analgesia, aspirin can be administered concomitantly w Talwin.

Children Under 12 Years of Age. Since clinical experience in cl dren under 12 years of age is limited, administration of Talwin this age group is not recommended.

Duration of Therapy. Patients with chronic pain who have recei Talwin orally for prolonged periods have not experienced wi drawal symptoms even when administration was abruptly disc tinued (see WARNINGS). No tolerance to the analgesic effect been observed. Laboratory tests of blood and urine and of liver kidney function have revealed no significant abnormalities af prolonged administration of Talwin.

Overdosage: *Manifestations.* Clinical experience with Talwin ov dosage has been insufficient to define the signs of this condition.

Treatment. Oxygen, intravenous fluids, vasopressors, and ot supportive measures should be employed as indicated. Assisted controlled ventilation should also be considered. Although nal phine and levallorphan are *not* effective antidotes for respirat depression due to overdosage or unusual sensitivity to Talwin, p enteral naloxone (Narcan®, available through Endo Laboratories a specific and effective antagonist. If naloxone is not available, p enteral administration of the analeptic, methylphenidate (Ritalin may be of value if respiratory depression occurs.

Talwin is not subject to narcotic controls.

How Supplied: Tablets, peach color, scored. Each tablet cont Talwin (brand of pentazocine) as hydrochloride equivalent to 50 base. Bottles of 100.

Winthrop Winthrop Laboratories, New York, N. Y. 10016 (158

50 mg. Tablets

Talwin®

brand of

pentazocine (as hydrochloride)

the long-range analgesic

Blue Cross Association: Statement on National Health Insurance

The following are excerpts from the recent statement of Walter J. McNerney before the Committee on Ways and Means of the United States House of Representatives:

Blue Cross supports fully the need to improve the financing of health care as part of an overall national strategy on health. The current formulation of government-private programs still leaves too many citizens without adequate protection, despite the good intentions expressed in 1966, when Medicare and Medicaid were first implemented.

In contemplating this policy, we need to remind ourselves that financing will solve some of our problems, but not all. Health expenditures have doubled in the last decade. Ironically, more money has been accompanied by more public frustration and attacks on the system.

If new financing programs are to be successful, we must develop a basic strategy dealing with changing the delivery system of which financing is a part, rather than attempting to develop a financing program of which change in the delivery system is a part.

To the simple criterion, how much money is added to the system and how it is shared, other key measures which we support have been added. For example:

- No individual should be deprived of or delayed in receiving needed care because of inability to pay. Furthermore, he should be able to seek care with dignity.
- The program should prevent financial hardship for individuals and families.
- The financing system must be responsive to changing public preferences and the burgeoning of medical science. Excessive detail in law or regulation or excessive bureaucracy can lock in current delivery patterns and make rational change difficult.
- Whenever possible, financing should be employed to further programs designed to make the delivery system more efficient and effective.
- Programs involved under national health insurance should be easy to administer and not bound by complex procedures and regulations.
- New financing programs should be acceptable to providers, professionals, and consumers.
- A reasonable degree of pluralism should be involved in both financing and delivery of health services.
- Whatever national health insurance is arrived at by the Congress, it should be implemented with due regard to the availability of supporting institutions and services and the time for tooling up.

When these considerations are applied against current bills before the Congress, Blue Cross, based on its experience, feels that there is more work to do before the Congress acts.

The proposals that rely heavily on tax and other incentives to encourage purchase of private insurance and prepayment would fail inevitably to bring all citizens under adequate protection. Too many individuals and employers will not buy protection because of a variety of reasons, including outright neglect. These proposals tend to underestimate the need and means for changing delivery of care, and they rely too heavily on state government in regard to administration and regulation. The federal government must be eminently involved in both administration and regulation. Medicaid taught us that.

One major proposal calls for a unitary federal financing program operated out of Washington, D.C., through ten regional offices. It does provide for universal coverage and elaborate controls. In the process, it creates an extensive federal bureaucracy that would attempt to spend some $70 billion for 200 million people with one national board reviewing and approving budgets for a myriad of providers as the only basis for payment. This would be totally unrealistic, even if one were starting from scratch, let alone with a well-established system enjoying considerable support.

The Administration's proposal makes an effort to capitalize on what is good in both the public and private sectors, through an extension and modification of Medicare, institution of a Family Health Insurance Plan, continuing a modified Medicaid program, and the institution of a mandated coverage for employees. However, it has some serious shortcomings. Importantly, it does not achieve universal coverage. Unemployed single persons, childless couples, migrant workers, and others are not included under the FHIP program and not necessarily under other government programs. The benefits under the FHIP program do not match the basic benefits under the mandated program with which they must mesh. The array of deductibles and copayments under the FHIP and mandated programs impose excessive burdens on the near poor as well as burdens of comprehension and understanding.

Continued on Page 82

Letter to our President

Linus J. Stitham, M.D.
President
Maine Medical Association
50 Main Street – West
Dover-Foxcroft, Maine 04426

Dear Jerry:

Following a meeting with the Commissioner and the superintendents of the State hospitals and myself, I can assure you that no patient's admission to either Bangor or Augusta State Hospital will be declined except by a physician who has seen the patient.

Additionally, our attorney general has indicated that while desirable to have prospective patients screened in the communities in order to mobilize local resources short of State hospitalization, this cannot be a mandatory part of the admission procedure. Consequently, while we would encourage physicians to first avail themselves of local community mental health resources, this is not a requirement in relation to the admission of patients to the State hospital.

The law governing the responsibilities of the superintendent of a State hospital indicates that he may decline an admission based on the absence of "suitable accommodations." We do not have the resources within our hospitals to handle acute medical problems that are suitable for care in a general hospital and we'll have to decline those individuals who fit into this category. This is not based so much on our desire to reduce admissions as it is to assure that the patients get into the kind of care facility which their clinical needs indicate.

Finally, we'll continue to encourage physicians to first contact their local mental health resources and/or the State hospital before making the ultimate decision that a patient needs State hospital care. In this way, any possible disagreements can be resolved.

In closing, I would like to reiterate our standing invitation to you and any other physicians to visit our institutions, to participate in our staff conferences, or just to observe what happens to your patients in the State hospitals. We have a feeling that only by direct observation can doctors know what is done for their patients when they come into our institutions, and only by direct observation can they know some of the limitations of our programs and resources, as well as the strong points of our programs.

Sincerely,
WILLIAM E. SCHUMACHER, M.D.
Director
Bureau of Mental Health
Department of Mental Health and Corrections
Augusta, Maine 04330

County Society Notes

KNOX

The Knox County Medical Society met on January 4, 1972 at the Sail Loft in Rockport, Maine. Guests present were Mr. Jeff Ackor from the PenBay office and Mr. Marvin Baird from Ryan Advisors.

The minutes of the December meeting were read and accepted. Dr. Pratt's letter thanking us for the gift given him in December was read.

Old Business: Dr. Peter E. Giustra reported on the State Medical Society Interim Meeting held in December 1971 at Bangor. Four points were mentioned:

1. There is consideration of a new medical school in Maine. Dr. John A. Root recommended that we have Dr. C. Philip Lape of RMP come to a future Society meeting and discuss this project.
2. The Maine Medical Association is considering hiring a full-time lobbyist.
3. The Augusta State Hospital admission criteria have been revamped.
4. Peer Review was discussed.

New Business: Dr. William Strauss, Director of Penobscot Bay Medical Center, stated that the final clearing of the deed on the property was in progress. He also stated that the Building Committee was very active and an architect soon would be chosen for the new hospital.

Dr. Henri R. Hardy discussed his visits to Virginia and New York which involved studying other OEO workshops.

Dr. Robert J. Dreher was voted in unanimously as an active member of the County Society.

Dr. Thomas W. Williams was introduced as the speaker. He discussed the two-day meeting in Washington on automated multi-testing. He stated that medicine is switching gradually from being crisis oriented to longitudinal patient care orientation. This involves health maintenance and multi-testing. In the future, it is felt that the patient will spend less time with the physician and more time with the physician assistants. Hopefully, there will be integration of medical care by using the print-outs from computers. There was a discussion following the presentation and there were many questions from the physicians concerning the relevance of multi-testing. It was pointed out that the cost would probably be $35.00 to $50.00 per patient.

The meeting was adjourned at 10:15 p.m.

The meeting of the Knox County Medical Society was held on February 1, 1972 at the Sail Loft in Rockport, Maine.

The minutes of the January meeting were read and accepted.

Old Business: Dr. Janis Sube was elected a member of the Knox County Medical Society. Dr. Langhorne's letter of transfer from the West Palm Beach Medical Society was read. He is a member in good standing and as soon as he fills out his application, it will be acted on.

Dr. Edward K. Morse stated that an attempt should be made to list all diagnoses on hospital charts in order of the diseases for which the patient was treated. He stated that an attempt will be made throughout the state to list the diseases in order of importance.

Dr. Paul J. Killoran commented that the State Peer Review Committee was meeting but was moving slowly at the present time in an attempt to define its role and to set up contracts with the various insurance agencies.

Dr. Henry O. White commented on the minutes of the recent House of Delegates meeting and feels that the need for a state medical school should be discussed. He will contact Dr. C. Philip Lape from the Augusta office of RMP to talk to the Society on February 15th concerning this important subject.

Dr. White read the minutes of two Penobscot Bay Medical Associates' meetings held last month. A medical service contract and service benefit structure have been approved so that our physicians can work with the OEO Ambulatory Care Center.

Dr. William Strauss reported on the Penobscot Bay Medical Center. He stated that the deed has been finalized and now is in possession of the Penobscot Bay Medical Center for the land that was given to the Center by the Martin-Marietta Corporation

on Route 1. He also stated that an architect has been chosen to design the new hospital building and the PenBay Board will formally act on the recommendations of the Building Committee at their meeting on February 7, 1972. He stated that the Ambulatory Care Center is moving ahead and it is approximately 60 percent completed and should be ready by April 1st.

New Business: Dr. White stated that Dr. David Reed will speak at the next meeting and the Mid-Coast Dental Society has been invited to attend.

Dr. White then introduced the speaker of the evening, Dr. Nicholas Danforth from Dartmouth Medical School, who spoke on the MEDEX program which is functioning at that school. He discussed the history of this program along with the "whys and wherefores" of the program. Eight MEDEX technicians are now working in Maine as students and will probably be hired after they finish their preceptorship. He discussed the whole role of the physician's assistant and he feels that this type of person will be utilized more and more in the future.

At the end of Dr. Danforth's presentation, there were a number of questions from the floor. Dr. White pointed out that the OEO program will have a MEDEX starting the 1st of April to work with Dr. Hardy and, hopefully, with other physicians in the area.

The meeting was adjourned at 10:30 p.m.

WILLIAM E. NUESSE, M.D., *Secretary*

CUMBERLAND

The 365th meeting of the Cumberland County Medical Society was held at Valle's Steak House in Portland, Maine on January 20, 1972. It was a snowy, wintry evening, one of the few of the season, but 162 members and guests attended with a spirit of friendliness and warmth. The Social Hour was keen and the dinner of Roast Beef was excellent.

Following the dinner, the Vice-President, Dr. Sidney Branson introduced the head table and noted that the President, Dr. Lawrence Crane was in Sapporo, Japan attending the Winter Olympic Games. Those at the head table included the Honorable Peter Kyros, speaker of the evening; the immediate past president of the Maine Medical Association, Dr. Charles R. Glassmire; the immediate past president of the Cumberland County Medical Society, Dr. George F. Sager, and Mrs. Sager; and Dr. and Mrs. Douglas R. Hill.

A short business meeting was held and three new applicants were admitted to the Society by letter of transfer. They were Dr. Ake Akerberg, transferring from Oxford County; Dr. Joseph Hannemann, a transfer from Denver, Colorado; and Dr. Jean J. Labelle, a transfer from the Medical Society of Quebec. The Society voted unanimously to accept these new applicants by transfer.

Dr. Branson then introduced the speaker of the evening, the Honorable Peter Kyros. Mr. Kyros spoke in general terms of some of the legislation pending in the upcoming session of Congress. He foresees in the '70's a great increase in the health care and health delivery facilities and systems in the United States, particularly as supported by the Federal Government. He urged all the doctors to help the Congress by rendering input whenever possible, both as individuals and as groups. For it is only through the receiving of ideas, information, and facts from practicing physicians and groups that Congressmen are able to create the legislation necessary to provide new programs, better programs and more effective programs.

The meeting was adjourned following Mr. Kyros' speech, by Vice-President Branson.

DOUGLAS R. HILL, M.D., *Secretary*

KENNEBEC

The Kennebec County Medical Association met at the Holiday Inn in Augusta, Maine on January 20, 1972. Following dinner, the business meeting was opened by the President, Dr. Francis J. O'Connor.

The minutes of the last meeting were read and accepted. Elected to full membership were Drs. Ulrich B. Jacobsohn, Augusta State Hospital and Fred John Lagomarsino of Waterville. The names of Drs. J. Alfred Letourneau, Waterville, Hsueh-ching Cheng, Augusta State Hospital and Wu-Ming Tsao of Togus were announced as candidates for membership and referred to the Council.

The Scientific Program was given by Louis Weinstein, M.D., Professor of Medicine, Tufts University Medical School and Chief, Infectious Disease Service, New England Medical Center Hospitals. Dr. Weinstein's presentation was entitled "The Modern Use of Antibiotics" and stressed proper identification of pathogenic organisms, sensitivity studies, host factors, drug resistance and interaction, dosage schedules, prophylactic use of antibiotics, and the need for development of new similar agents in the future.

The meeting was adjourned by Dr. O'Connor at 9:30 p.m.

The Kennebec County Medical Association met at the Silent Woman Restaurant in Waterville, Maine on February 17, 1972. After the social hour and dinner, enjoyed by fifty-four members and guests, the Business Meeting was called to order by the Vice-President, Dr. Richard R. Dole.

The minutes of the last meeting were read and accepted. Dr. Richard T. Chamberlin then gave a brief resumé of the activities of the County Peer Review Committee. A letter from the Probate Court (Kennebec County) requesting the assistance of our membership in accomplishing examinations required by Title 34, Sec. 2334, (which relates to the Involuntary Hospitalization of the mentally ill) was read and extensively discussed.

The application of Dr. Warren V. Kindig of Augusta was reviewed and referred to the Council. The following physicians were elected to full membership: Drs. Hsueh-ching Cheng, Augusta State Hospital, Wu-Ming Tsao, Togus and Gardiner and J. Alfred Letourneau of Waterville.

Dr. Dole then introduced Edward D. Frank, M.D., Assistant Professor of Medicine, Harvard Medical School who discussed "The Management of Shock." Dr. Frank's excellent presentation included a review of the many physiological factors involved in the shock state and stressed that in addition to equipment advances and improvement in treatment methods, "steadfastness and total commitment" on the part of the physician greatly aids survival. After an enjoyable discussion period, the meeting was adjourned by Dr. Dole at 9:45 p.m.

FRANCIS A. SPELLMAN, M.D., *Secretary*

WASHINGTON

A regular meeting of the Washington County Medical Society was held on February 16, 1972 at the Down East Community Hospital in Machias, Maine, with 15 members and guests present.

Dr. G. Bernard Shaw, President of the Washington County Medical Society, said that the MIC program had been re-approved and that a non-profit corporation, made up of members of the Hancock-Washington County Medical Societies, should be set up to handle this program. This was approved.

Dr. Donald M. Robertson was appointed delegate to the Maine Medical Association. Dr. Robert G. MacBride was appointed alternate.

A seminar was held on Testicular Tumors, particularly Seminomas. Also discussed by the panel was Obstructive Uropathy in Children. The panelists were: Drs. George O. Chase, Pathologist, Eastern Maine Medical Center, Bangor; George E. Files, Urologist, Eastern Maine Medical Center, Bangor; George G. Fuller, Radiologist, Maine Coast Memorial Hospital, Ellsworth and Randall H. Silver, Pediatrician, Maine Coast Memorial Hospital, Ellsworth.

The cases were presented by Dr. Donald M. Robertson and Dr. Robert G. MacBride.

KARL V. LARSON, M.D., *Secretary*

Continued from Page 79

Heavy reliance is placed on the HMO in changing delivery patterns. The amounts of grant and loan money talked about so far to support HMOs fall far short of a meaningful impact.

The sum of our experience makes it clear that the Congress should be able to fashion a bill between the two unworkable extremes of a simple tax incentive bill on one hand and a federally-operated financial system on the other.

Such a bill must make it possible for all citizens to get health care coverage to protect themselves against unreasonable financial hardship.

Further, it should stem from a strong HEW featuring what government does best and, from there, capitalize on the equally vital and unique characteristics of the private sector.

The goals should be clear and worthy of our society.

The standards should be rigorous in keeping with our Nation's administrative know-how.

There should be several sources of income to guard against the specter of underfinancing.

And there should be, by intent, room for various systems to play against one another in constant search for improvement in service given backbone by selective use of performance contracting.

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The Journal
of the
Maine Medical Association

Volume Sixty-three | Brunswick, Maine, May 1972 | Number 5

Dusting Off and Polishing Up the Control of Tuberculosis*

THEODORE L. BADGER, M.D.**

"The most basic concept to discuss is the all important role of good regimens of chemotherapy in the care of tuberculosis, practically to the exclusion of all other factors, provided the patient cooperates by taking his drugs."

This was the statement made by Dr. Wallace Fox,[23] Chairman of the Tuberculosis Division of the British Research Council, when addressing a Veterans Administration Conference in Washington in 1968. What he said then is especially appropriate today, three years later.

The summary of his talk is best seen in the following table:

TABLE 1

FACTORS INFLUENCING RESPONSE TO TREATMENT

Unimportant	Rest Accommodations Diet Nursing Climate Pine trees Psychological factors
Relatively unimportant	Severity of disease
IMPORTANT	CHEMOTHERAPY COOPERATION OF PATIENT

Briefly scanning the past, many thousands of years have passed since neolithic man was shown to be the first to give evidence of tuberculosis in his surviving skeletons. Since then Hippocrates, Gaelen, Lister, Morton, Laennec and Villamen are but a few who have recognized most of the clinical aspects of tuberculosis without knowledge of the vindictive bug itself.

The last ninety years have accomplished what three thousand years could not and have been dramatized by four discoveries of unique importance.

Robert Koch[1] in 1880 by an accident of serendipity made a significant contribution to the cause of tuberculosis. He was the first to isolate bacteria in pure culture. Pasteur had debunked the theory of spontaneous generation but his bacterial cultures on liquid media were always contaminated. Koch after completing his medical education had been forced to earn his living for years in general practice with a horse and buggy and a small black bag. Microscopy had always been his consuming interest, especially concerning tuberculosis. Consequently, his examining room was partitioned with a curtain for a makeshift laboratory for his scientific studies. One day, between patients, as he pulled his microscope toward him, he noticed that some slices of boiled potatoes left from his previous day's luncheon contained several small, colored specks. Examining them separately under his microscope, he found that each one was a pure growth of bacteria. So by chance, the isolation of specific strains of bacteria on solid media was made possible. Two years later in 1882, Koch's epoch-making discovery of the tubercle bacillus in pure culture, proven beyond question as the cause of tuberculosis, marked the beginning of its control.

The second turning point in the control of tuberculosis came in 1895 when another genius in science, William Conrad Roentgen,[2] again by the merest chance, made x-ray photography possible in another instance of serendipity. Roentgen was observing the effects of electrical potentials in gas-discharge tubes in a darkened room when he noticed a faint glow emanating from the surface of a nearby piece of cardboard impregnated with a fluorescent powder. Quite by chance his hand came between the tube and the treated cardboard. To his amazement, there appeared on the luminous surface of the cardboard

*Presented before the Maine Thoracic Society September 15, 1971, in Portland, Maine.

**Clinical Professor of Medicine, Emeritus, Harvard; Past President of the Massachusetts and the American Thoracic Societies.

a ghostly outline of his flesh and the bones of his fingers. This mysterious ray he classified by the algebraic symbol for the unknown, "x"; hence the beginning of x-ray photography.

The third major contribution to the control of tuberculosis came following the discovery of cow's milk as one of the major sources of infection.[3] In 1917, and continuing for many years thereafter, began the elimination of all tuberculous cattle in the country. Charles E. Cotton stands out as the staunch crusader in this campaign that was strongly opposed by the medical profession but supported and made effective by the veterinarians. While veterinarians undertook the eradication of all tuberculous cattle by the slaughter of all tuberculin reactors, physicians in many parts of the country were still regarding the positive tuberculin reaction as an indication only of immunity.

From 1917 to the end of 1967, over 470 million tuberculin tests were administered to cattle and more than 4 million positive reactors had been slaughtered and examined post mortem. The proof of the pudding here was on the autopsy table. Thus occurred the elimination of tubercle bacilli from milk and from all dairy products. Therefore, there remains today only the inhalation of air-borne droplets carrying the tubercle bacillus as the sole source of human infection.

The fourth and last dramatic episode occurred with Selman Wacksman's discovery of Streptomycin, the first of the antituberculous drugs, in 1950.[4] Subsequent clinical trails by Hinshaw and Riggins[5] firmly established its lethal effect on the tubercle bacillus.

Isoniazid came a few years later[6] and the results of the first clinical trials of Isoniazid at Seaview Sanatorium in New York are well remembered. The drug was originally a German discovery in the nineteen twenties, thought to be mildly antiseptic, but allowed to lie fallow for years. One of the pharmaceutical houses discovered its usefulness against the tubercle bacillus, again by chance, and TIME magazine dramatized its first clinical trials at Seaview so miraculously rapid were the effects of the drug. The early reports read like an extravaganza. Patients were photographed dancing around the wards so exciting was their return to normal.

Coming down to earth, however, let's consider what is new and useful in our modern attitudes toward diagnosis and treatment of this kaleidoscopic disease wherever and whenever it occurs.

Tuberculosis is still an old man's disease, but much worse in blacks than whites. Furthermore that index of suspicion needs to be widely extended in the older age groups who may develop their tuberculosis in very atypical forms and often afebrile or without suspicious symptoms except a fever of undetermined cause. Furthermore, among males, married men have the lowest incidence of tuberculosis. Bachelors, however, have twice as much tuberculosis while widowers and divorced men have four times as much clinical tuberculosis as married men.[7]

Diagnostic techniques have been modified over recent years. "The tuberculin test," J. Arthur Myers very aptly said, "is the master key to diagnosis." Whereas a positive tuberculin test may only reinforce a high index of suspicion that a given individual may have clinical tuberculosis, its greatest value is the detection of primary, recently acquired infection without other overt evidence of active disease. The PPD tuberculin, Intermediate Strength, 5 tuberculin units, has become the accepted national standard initial test of greatest accuracy in establishing the presence of infection with M. Tuberculosis. In addition, it eliminates most of the cross-reactions due to atypical acid-fast mycobacteria. Interpretation and recording of results should identify the kind of strength of tuberculin as well as the accurate measurement of the reaction, if any, in millimeters of induration (not redness). Ten millimeters or more of induration has become the widely accepted index of true positivity across the country, thus eliminating most cross-reactions. However, here in New England, and in Maine especially, atypical mycobacteria do not play a very large role in producing pulmonary disease, and therefore, anything in the 5-9 millimeter range of induration had best be considered positive (not just doubtful) or many cases of tuberculous infection will be missed.

TABLE 2

FOLLOW-UP REGARDING SIZE OF TUBERCULIN REACTION

MM Size Reaction or induration	*% New Active Tbc*	*Total Cases*
5-9	0.3	2.4
10-14	1.7	5.8
15-19	1.5	6.6
20-24	2.1	9.2
25+	8.8	14.2

Table 2 points primarily to the need for accurate measurement of the tuberculin reaction. The larger the induration when read at 48-72 hours, the greater is the possibility of finding active tuberculosis in that individual or a member of his family or a school classmate.

If no skin reaction is observed, it is helpful for others reading the report to know this and should be so recorded.

What about the Second Strength PPD (250 tuberculin units)? Many older patients with debility or other chronic disease may be non-reactors to the intermediate Strength PPD and still have active tuberculosis. They should be retested with PPD Second Strength.[8] Sarcoidosis, Hodgkin's disease, acute viral infections and miliary tuberculosis will usually be non-reactors to the Intermediate Strength. The latter acute infections will probably turn positive again when the acute episode is over.

A negative Second Strength PPD without skin reaction should be regarded as a very reliable index of the *absence* of tuberculous infection, even in sarcoidosis, and in young healthy individuals. Therefore it can be extremely useful in the differential diagnosis of pulmonary infiltrates of other etiology by the exclusion of tuberculous infection.

The Tuberculin Tine Test,[9] a convenient ever-ready intradermal skin puncture, has its weaknesses but serves

Table 3

Comparison of Tuberculin Tine Test with PPD Intermediate Strength

	Tuberculin Test Positive vs. Negative in millimeters of induration	
	PPD Intermed.	*TTT*
Negative	Less than 5 mm.	Less than 2 mm.
Doubtful	5-9 mm.	2-4 mm.
Positive		Discrete
Definite Positive	10 mm. or more	Confluence of tines

as an easily administered screening test that can be quickly available and easily read for screening in the home or office. However, if a "doubtful" results, it should be checked with the PPD, Intermediate Strength.

No skin reaction is always a good negative. The confluent induration of two or more tiny skin pricks is a good positive. Don't bicker about the presence of questionable roughness felt by the examining finger. Check it with PPD Intermediate Strength.

X-ray examination of the lungs remains our standby to augment diagnostic suspicions, but most useful when previous films are available for comparison. Far-advanced cavitary disease may often change very little in the light of powerful modern drugs when irreversible disease may show little x-ray change. With minimal to moderate non-cavitary pulmonary lesions, keep that *index of suspicion* high on the diagnostic list until, if and when, the lesion is proved to be of other etiology. Be stubborn in remembering that tuberculosis is now a curable disease and a relentless search of diagnostic procedures may be profitable. Remember, *never* start antituberculous drugs until all secretions – sputum, gastrics, bronchial washings, urine, ascetic fluids and biopsy material – have been collected for culture. Once these are completed, start treatment, if suspicious, while the cultures are incubating.

The sputum if present, preferably a 24-hour specimen properly concentrated, is the best for definitive diagnosis of tuberculosis. If no sputum, gastric cultures are necessary, three of them on successive days. Waste none of the material or the laboratory technician's time in microscopic examination of gastric contents for there are so many acid-fast rods in the gastric juices that false positives reach a high percent of all specimens so examined. Furthermore, false positives lead to unwarranted infectious precautions – a nuisance when not needed.

Fluorescent microscopy[10] has become the more sophisticated rapid technique for identification of acid-fast material – gleaming specks in a pitch-black field – but experience is needed to identify specific mycobacteria versus acid-fast junk.

Do not, however, underestimate the value of the time-honored Zeil-Neilson acid-fast stain which remains the old reliable in finding organisms in all body secretions and biopsied tissues.

Sputum culture and often guinea-pig inoculation remain essential for identification of human from other acid-fast mycobacteria, but only in the hands of expert mycologists.

As will be seen in Table 4, the *Niacin test* remains the one most characteristic of the human strain of mycobacteria at the exclusion of all others. For the best results of bacterial differential diagnosis, special central laboratory expertise is needed. Identification of fungal strains of acid-fast organisms is tricky and deserves the attention of a mycologist who is interested in the subject. Many a fungus, especially nocardia asteroides, sets up housekeeping in old tuberculous scars with no damage to the host except a mistaken diagnosis.

The Veterans Administration[11] and the U. S. Public Health Service[12] are saying that two negative microscopic sputum examinations, independent of culture, serve as criteria for hospital discharge with modern powerful antituberculous drugs. However, it seems wise to stick to the conventional criteria of three negative sputa with cultures "cooking in the oven" while the appropriate intensive phase I triple-drug therapy is started before discharge.

Treatment regimens. Present standard drug regimens remain extremely effective and are entirely satisfactory. Until the price of Rifampin comes down (now 95 cents a capsule), standard treatment, especially in initial, minimal and moderately advanced, non-cavitary disease should be the regime of choice as usual.

Standard drug therapy should be applied in two phases.

Table 4

Differentiation of Mycobacteria

		M. Tuberculosis		*Saprophytes*	*Unclassified Mycobacteria*			
	Tbc.	*Bovine*	*Avian*		*I*	*II*	*III*	*IV*
Colonies								
Cords	+	+	+	—	±	—	—	±
Pigment	W	W	W	Yellow-red	Yel-R (lt)	Orange	W	±
Niacin	+	—	—	—	—	—	—	—
Animals								
Mouse	+	++	++	—	+	—	±	∓
G.P.	+++	+++	—	—	—	—	—	—
Rabbit	±	+++	++	—	—	—	—	—

Phase I – Intensive triple-drug therapy for 6-12 weeks is shown in Table 5 below:

TABLE 5

PHASE I – USUAL INITIAL DRUG REGIMENS
INTENSIVE – TRIPLE DRUGS
CAVITARY, ADVANCED DISEASE

1. Isoniazid, 300-600 mg/day.
2. PAS, 9.0 grams p.o. daily or
 Ethambutol, 15 mg/kilo/day.
3. Streptomycin, 1.0 gram i.m. daily
 for 6-12 weeks.

Alternate drugs:
Pyrazinamide, Ethionamide, Cyclocerine

The duration of *triple-drug* intensive therapy is usually dependent upon the amount of Streptomycin, 1.0 gram intramuscularly daily, that can be tolerated without dizziness or unsteadiness, when it should be stopped immediately. Young people may tolerate it well up to 24 weeks if needed. Oldsters may develop vertigo after a few weeks.

Phase II – Less Intensive, dual-drug therapy follows Phase I up to a year or more as follows in Table 6.

TABLE 6

PHASE II – USUAL INITIAL DRUG REGIMENS
LESS INTENSIVE THERAPY – 2 DRUGS

1. Isoniazid, 300-400 mg/day	)	10-12
2. PAS, 9.0 grams/day or	)	mos.
Ethambutol, 800-1000 mg/day	)	or more

Alternate drugs:
Pyrazinamide, Ethianomide, Cyclocerine

The most modern chemotherapy of tuberculosis has been somewhat altered by the use of the new drug, Rifampin, especially in advanced, cavitary disease and retreatment cases. My own experience is limited to three tough cases with most encouraging results. The British[11] and the U. S. Public Health Service[12] and the Veterans Administration[13] have the widest experience with Rifampin so most of our knowledge of it comes from them. Others,[14,15] however, have studied it carefully.

Rifampin was discovered in Milan, Italy, in 1963, but not available for use in our country until 1969. The first studies here on 83 tuberculosis patients classed as "treatment failures" brought remarkable success in 95% of cases without revealing any toxicities. All treatment failures in this group were in those who developed resistance to Rifampin – only 5%.

Rifampin given as a single daily dose of 600 milligrams, attains peak activity at 3 hours with significant blood levels at 12 hours. Isoniazid, on the other hand, shows peak activity at 2 hours with negligible levels at 12 hours.

Rifampin given alone appears to be not very effective, but in a single dose should be used with Isoniazid, Ethambutol or PAS in the long run. Experimentally in animals infected with tuberculosis, Rifampin plus Isoniazid was the combination that consistently produced tissue sterilization.

For the first time a two-drug, oral regime, Rifampin-Isoniazid, which was relatively non-toxic, was shown to eliminate tubercle bacilli in 95% of far-advanced cavitary disease in 16-20 weeks.[12]

Regimens of the first 234 patients treated over 2 years in a total cooperative study of 600 patients by the U. S. Public Health Service[12] are shown in Tables 7, 8, and 9.

TABLE 7

MODERN INITIAL TREATMENT OF TUBERCULOSIS
WITH RIFAMPIN. U.S.P.H.S.
RANDOMIZED STUDY – 234 PATIENTS

Regimens
1. Rifampin-Isoniazid.
2. Rifampin-Isoniazid-Ethambutol.
3. Streptomycin-Isoniazid-Ethambutol = Control.

Dosage
1. Rifampin, 600 mg. before breakfast.
2. Isoniazid, 300 mg. once daily.
3. Ethambutol, 15 mg/kilo once daily.
4. Streptomycin, 1.0 gram i.m./day 4-8 weeks then twice weekly.

TABLE 8

MODERN INITIAL TREATMENT OF TUBERCULOSIS
WITH RIFAMPIN

Results
1. Well tolerated.
2. Rifampin plus Isoniazid most effective
 Less toxic than any other regime.
3. Bacilli eliminated in 95% of cavitary, far-advanced tuberculosis in 16-20 weeks.
4. Liver: SGOT exceeded 100 in 9/127
 Decreased in 3 while on drug
 Decreased in the other 6 when Rifampin stopped.

Adverse reactions of Rifampin are seen in Table 9.

TABLE 9

RIFAMPIN ADVERSE REACTIONS

1. Severe effects rare.
2. G.I. symptoms, skin rash, reversible leukopenia.
3. Twice daily not good – thrombocytopenia in 6% and fevers.
4. Transient elevations of SGOT and SGPT.
5. Jaundice due to interference with liver uptake of bilirubin, not liver necrosis.
6. Need for careful monitoring.

It is well to remember that Rifampin is a new drug apparently with great potentialities, few toxicities, but untried by long-term use and should be carefully monitored in every case.

Since the incorporation of Rifampin into our armamentarium of drugs for tuberculosis, the Veterans Administration[11] with its wide experience states that a new atmosphere of optimism pervades its treatment.

1. Almost every patient is expected to recover.

2. Hospitalization is shorter at about 28 days.
3. Non-infectiousness appears more rapidly.
4. Criteria for hospital discharge are 2 negative microscopies, independent of culture.

Perhaps this euphoria may parallel that of Isoniazid in 1952, but time will tell.

The preventive treatment or chemoprophylaxis of tuberculosis is based upon a positive tuberculin test using Intermediate Strength PPD with a reaction of 10 millimeters or more of induration (including 5-9 millimeters in New England).

It is well to note that Isoniazid is a relatively safe drug with few adverse reactions, but it is capable of serious toxicities in the few in whom it may occur. Therefore, one must figure out when the benefits of proplylaxis are worth the risks.[16]

In considering the advisability of preventive treatment with Isoniazid, the risk of developing tuberculosis is enhanced by the existence of certain conditions that should influence one in favor of using prophylactic Isoniazid. These are shown in Table 10.

TABLE 10

PREVENTIVE TREATMENT OF TUBERCULOSIS
FACTORS THAT ENHANCE DEVELOPING TUBERCULOSIS[12]

1. Diabetes.
2. Gastric Resection.
3. Steroid Therapy.
4. Non-Europeans.
5. Recent Tuberculin Conversion.
6. Below normal weight.
7. Silicosis.
8. Large tuberculin reactions.
9. Pregnancy.
10. Old-age – married or single.
11. Strong family history of tuberculosis.

The toxicities of Isoniazid are outlined in Table 11.

TABLE 11

PREVENTIVE TREATMENT OF TUBERCULOSIS
ADVERSE EFFECTS OF ISONIAZID[17]

1. Peripheral neuropathy – rare.
2. Arthritic symptoms – rare.
3. Carcinogenic factors – very rare.
4. Intellectual factors – uncommon
 Accidents – rare
 Slowed thinking – intellectuals.
5. Hepatic factors
 a. 10% slight rise SGOT – transient
 b. Washington's hepatitis. 19 cases.
 2 deaths.
 c. U.S.P.H.S. 4 cases in 36,000 treated.

There is no doubt that the Washington epidemic[18] has stirred our thinking regarding the hepatic toxicities of Isoniazid. There is, however, something unexplained in this local epidemic where the source of a local carrier, the contamination of seafoods, the significance of preexisting liver disease, and especially the careful investigation of alcoholic intake have not to my mind been well documented. The author warns that a large intake of alcohol and Isoniazid do not go well together.

Screening procedures, priorities for the use of preventive Isoniazid and monitoring procedures after starting prophylactic Isoniazid are recommended by a joint statement of the American Thoracic Society (ATS), the National Tuberculosis and Respiratory Disease Association (NTRDA) and the Center for Disease Control (CDC)[18] of the U. S. Public Health Service. These are seen respectively in Tables 12, 13 and 14.

TABLE 12

PREVENTIVE TREATMENT OF TUBERCULOSIS
JOINT STATEMENT ATS – NTRDA – CDC

Screening Procedures recommended by History[19]

1. Previous adequate use of Isoniazid.
2. Adverse reactions to Isoniazid including past liver disease.
3. Use of long-term medications: e.g. Dilantin® sodium, steroids, etc.
4. Symptoms and signs indicative of liver disease in the past.
5. (TLB) Alcohol consumption – careful detailed record.

TABLE 13

PREVENTIVE TREATMENT OF TUBERCULOSIS
JOINT STATEMENT ATS – NTRDA – CDC

High Risk – descending priority[19]

1. Closed groups – contacts with active tbc.
2. Recent infection (Tuberculin converters).
3. Inadequately treated inactive tbc.
4. PPD Positive – x-ray abnormal.
5. PPD Positive – Chronic disease e.g. diabetes.
6. PPD Positive – under age 20.

Low Risk

1. PPD Positive – x-ray normal.
2. No chronic disease.

TABLE 14

PREVENTIVE TREATMENT OF TUBERCULOSIS
JOINT STATEMENT ATS – NTRDA – CDC

Monitoring Procedures – Patients on Isoniazid[19]

Monthly clinical review to include:

1. *Symptoms* of liver damage –
 Loss of appetite, fatigue, malaise.
2. *Signs* of liver damage –
 Dark urine, jaundice, big liver.
3. *Laboratory studies not* needed – e.g. SGOT in absence of signs and symptoms.
4. Stop Isoniazid if toxicities appear.

Specifically it is recommended that in spite of the Washington epidemic of hepatitis that the tuberculosis preventive program using Isoniazid be continued as before but with more careful screening, selectivity for prophylaxis and more careful monitoring while the drug is being taken.

A few other recent observations are of importance regarding control, prevention and eradication.

1. *Exogenous vs. endogenous reinfection*[20] has been debated pro and con for years until Dr. Eugene Stead proved recently by phage typing that most reactivations

of tuberculosis, even years after the primary infections are endogenous in origin. All cases that he studied showed only a single phage type of bacillus recovered from each individual no matter how late in life the reactivation occurred.

2. *Care of tuberculosis in the general hospital* which you in Maine are all too familiar with must fall into the category of infectious disease in our teaching programs. Young doctors interested in tuberculosis are being eradicated faster than the disease and we old fogies who are knowledgeable in the clinical manifestations of tuberculosis should be made available for indoctrination of the rising generation of physicians concerning the kaleidoscopic features of this disease.

3. *Home care vs. hospital care.*[21] When patients were sent home after a few days in the hospital for study and initiation of treatment in a study by Edison & Farmer, they showed, comparing home vs. hospital results:

a. Sputum conversion time identical.
b. Home care follow-up improved.
c. No increase in home contact cases.
d. Total treatment costs greatly reduced.

But this home care required a family-oriented, multiphasic, disciplinary team to carry it out.

Primary resistance of the tubercle bacilus according to Gladys Hobby's long-term studies[22] show 93% of all bacilli are sensitive to all three drugs, Isoniazid, Ethambutol and Rifampin, with no recent increases. Isoniazid shows 98% of organisms to be sensitive, and primary resistance to Rifampin at this stage is indeed very rare.

Finally, to emphasize the single most importance point of this presentation, I will end as I began with the quotation from Dr. Fox, "The most basic concept to discuss is the all important role of good regimens of chemotherapy in the care of tuberculosis, practically to the exclusion of all other factors, provided the patient cooperates by taking his drugs."[23]

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Program - 119th Annual Session
Maine Medical Association

June 11, 12, 13, 1972 — The Colony, Kennebunkport

Arranged by the Scientific Committee

BRADLEY E. BROWNLOW, M.D., Blue Hill
Chairman

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Information

Registration:
Registration throughout the session will be in the Lobby at The Colony. Registration fee $2.00.
Sunday, June 11 — 9:00 A.M. to 5:30 P.M.
Monday, June 12 — 9:00 A.M. to 6:00 P.M.
Tuesday, June 13 — 9:00 A.M. to 4:30 P.M.

Telephone: The number at The Colony is Kennebunkport, (207) 967-3331.

Visiting Delegates:
Introduction of Visiting Delegates will take place at meetings of the House of Delegates on Sunday, June 11.

Technical Exhibits:
This year sixteen companies are contributing to the success of the annual session program by participating in the Technical Exhibits. A list of the exhibiting companies and representatives will be found on page 93 of this program.

Please show your appreciation for the support of these companies by visiting these exhibits.

Badge Code:
Badges with green borders indicate Officers, Past Presidents, Delegates and Alternate Delegates of the M.M.A.; yellow borders, members of the M.M.A.; blue borders, guests; red borders, exhibitors; and plain white for the members of the Woman's Auxiliary.

Sunday, June 11

9:30 A.M. First Meeting of the House of Delegates

Call to Order: LINUS J. STITHAM, M.D., President

Presiding: Speaker of the House, GEORGE W. BOSTWICK, M.D.

Presentation of the A. H. Robins' Physician Award for Community Service

12:30 P.M. Luncheon

3:00 P.M. Second Meeting of the House of Delegates

Election of President-elect and Executive Committee District Members

General Assembly (Immediately following the House of Delegates)

7:00 P.M. Lobster Bake

8:30 P.M. Entertainer

CHARLIE DORNAN
"The Boy From New Hampshire"

Monday, June 12

Scientific Program

9:30 A.M. to 12:30 P.M.

Welcome – BRADLEY E. BROWNLOW, M.D.

9:30 A.M. **New Immunization Practices**
SAMUEL L. KATZ, M.D., Professor and Chairman, Department of Pediatrics, Duke University School of Medicine, Durham, North Carolina

11:00 A.M. **Management of Urinary Tract Infections**
CATHERINE M. WILFERT, M.D., Assistant Professor in Pediatrics, Duke University School of Medicine, Durham, North Carolina

12:30 to 2:00 P.M. Luncheon

Scientific Program

1:30 to 4:00 P.M.

Welcome – WILLIAM H. AUSTIN, M.D.

1:30 P.M. **Business Meeting, Maine Chapter, American College of Surgeons**

2:00 P.M. Speaker to be arranged by the Maine Chapter, American College of Surgeons

Sponsored by the Maine Trauma Committee

3:00 P.M. **Snowmobile Injuries**
RAYMOND H. DOMINICI, M.D., U.S. Naval Hospital, Key West, Florida

6:00 to 7:00 P.M. Social Hour, Dutch Treat Marine Room

7:00 P.M. **Annual Banquet**

Presentation of Honorary Pins

President's Address: LINUS J. STITHAM, M.D.

Tuesday, June 13

Scientific Program

9:30 A.M. to 12:30 P.M.

Welcome – ROBERT H. PAWLE, M.D.

9:30 A.M. **Experiences in Africa and the Significance of Burkitt's Lymphoma**
AVRUM Z. BLUMING, M.D., Hematology Fellow, Columbia Presbyterian Medical Center, New York, New York (As of July 1, Dr. Bluming will be joining the faculty of Tufts University to be Director of the Leukemia-Lymphoma Program at the New England Medical Center)

10:30 A.M. **Clinical Side of the Arthritis Problem**
JOHN A. MILLS, M.D., Massachusetts General Hospital, Boston, Massachusetts

12:30 to 2:00 P.M. Luncheon

Scientific Program

2:00 to 4:00 P.M.

Welcome – BRADLEY E. BROWNLOW, M.D.

Sponsored by the Maine Medico-Legal Society

Presiding – ANTHONY BETTS, M.D., Waterville

Speaker: CYRIL H. WECHT, M.D., Allegheny County Coroner's Office, Pittsburgh, Pennsylvania

6:30 P.M. Dinner

Presentation of Golf Prizes by
DANIEL R. SHIELDS, M.D., Lewiston
Chairman, Golf Tournament

Specialty Group Meetings

Monday, June 12

2:00 to 4:00 P.M.

SECTION ON OPHTHALMOLOGY OF THE M.M.A.

PAYSON B. JACOBSON, M.D., Portland, presiding

The Peripheral Iridectomy
BERNARD SCHWARTZ, M.D., Ph.D., Professor and Chairman, Division of Ophthalmology, Ophthalmologist-in-Chief, Tufts University School of Medicine – New England Center Hospitals, Boston, Massachusetts

MAINE CHAPTER, AMERICAN ACADEMY OF PEDIATRICS

MAURICE ROSS, M.D., Saco, presiding

Controversial Aspects of Infectious Disease
SAMUEL L. KATZ, M.D., Professor and Chairman, Department of Pediatrics, Duke University School of Medicine, Durham, North Carolina

MAINE SOCIETY OF INTERNAL MEDICINE

MASON TROWBRIDGE, JR., M.D., Bangor, presiding

ASIM in Northern Tier States — Separate or United?
PAUL J. LENA, M.D., FACP, President, New Hampshire Society of Internal Medicine, Concord, New Hampshire

MAINE PSYCHIATRIC ASSOCIATION

ALAN M. ELKINS, M.D., Portland, presiding

Treatment of Schizophrenia
PHILIP R. A. MAY, M.D., Professor of Psychiatry at UCLA, The Neuropsychiatric Institute, University of California Medical Center, Los Angeles, California

Tuesday, June 13

10:00 A.M. – Business Meeting

MAINE MEDICO-LEGAL SOCIETY

ANTHONY BETTS, M.D., Waterville, presiding

11:00 A.M. – Executive Committee Meeting

MAINE RADIOLOGICAL SOCIETY

RICHARD W. TAYLOR, M.D., Lewiston, presiding

2:00 to 4:00 P.M.

MAINE SOCIETY OF ANESTHESIOLOGY

RICHARD A. MARSHALL, M.D., Lewiston, presiding

Controlled Hypotension
GEORGE E. BATTIT, M.D., Assistant Professor of Anaesthesia, Harvard Medical School and Associate Anesthetist, Massachusetts General Hospital, Boston, Massachusetts

MAINE RADIOLOGICAL SOCIETY

DEMITRIOS NIKOLAIDIS, M.D., Augusta, presiding

Some Useful Radiologic Signs in the Diagnosis of Diseases of the Chest
ROBERT G. FRASER, M.D., Diagnostic Radiologist-in-Chief, Royal Victoria Hospital, Montreal, P.Q., Canada

HONORARY PINS

Presentation of the Association's Honorary Pins will be made by Linus J. Stitham, M.D., President of the M.M.A., at the Annual Banquet, Monday evening, June 12 at 7:00 P.M.

FIFTY-YEAR PINS

Fifty-Year Lapel Pins will be presented to the following members who were graduated from Medical School in 1922:

Cumberland County
Francis M. Dooley, M.D., Portland
Yale University School of Medicine

Reginald T. Lombard, M.D., South Portland
Yale University School of Medicine

Washington County
Perley J. Mundie, M.D., Calais
Yale University School of Medicine

FIFTY-FIVE-YEAR PINS

Fifty-Five-Year Pins will be presented to the following members who received Fifty-Year Pins in 1967:

Aroostook County
William V. Kirk, M.D., Eagle Lake
University of Maryland School of Medicine

Lincoln-Sagadahoc County
Sidney C. Dalrymple, M.D.,
South Lincoln, Massachusetts
Bowdoin Medical School

Washington County
DaCosta F. Bennet, M.D., Lubec
University of Maryland School of Medicine

SIXTY-YEAR PIN

A Sixty-Year Pin will be presented to the following member who received his Fifty-Year Pin in 1962:

Waldo County
Foster C. Small, M.D., Belfast
University of Vermont College of Medicine

County Delegates

DELEGATES	ALTERNATES
Androscoggin County Medical Association	
Richard M. Swengel, M.D., Secretary	
John W. Carrier, M.D.	Cyprien L. Martel, Jr., M.D.
Thomas F. Shields, M.D.	Ralph Zanca, M.D.
Gilbert R. Grimes, M.D.	Lionel R. Tardif, M.D.
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George J. Harrison, M.D., Secretary	
Eugene G. Gormley, M.D.	Rodrigue J. Albert, M.D.
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Cumberland County Medical Society	
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John R. Davy, M.D.	Harry A. Bliss, M.D.
Irving J. Poliner, M.D.	Paul Maier, M.D.
Peter B. Webber, M.D.	William J. Hall, III, M.D.
Robert G. Sommer, M.D.	Hugh P. Robinson, M.D.
Robert H. Pawle, M.D.	Walter B. Goldfarb, M.D.
Howard P. Sawyer, Jr., M.D.	Lloyd G. Davies, M.D.
Harold N. Burnham, M.D.	Stanley W. Kent, M.D.
Kirk K. Barnes, M.D.	Wilhelm H. J. Van Deventer, M.D.
Charles E. Skillin, M.D.	Henry B. Finks, M.D.
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Hancock County Medical Society	
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John G. Murray, Jr., M.D.	John R. Hewson, M.D.
Kennebec County Medical Association	
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Richard T. Chamberlin, M.D.	Brinton T. Darlington, M.D.
Earle M. Davis, M.D.	John D. Denison, M.D.
George I. Gould, M.D.	Albert A. Poulin, M.D.
Samson Fisher, M.D.	Terrance J. Sheehan, M.D.
Valentine J. Moore, M.D.	John H. Shaw, M.D.

DELEGATES	ALTERNATES
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Mustafa V. Onat, M.D.	Robert J. Dreher, M.D.
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Lewis E. Phillips, M.D., Secretary	
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Gerald A. Metz, M.D.	Philip R. Kimball, M.D.
John J. Pearson, M.D.	Charles D. McEvoy, Jr., M.D.
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Somerset County Medical Society	
John H. Steeves, M.D., Secretary	
Harland G. Turner, M.D.	Richard C. Taylor, M.D.
Waldo County Medical Society	
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Washington County Medical Society	
Karl V. Larson, M.D., Secretary	
Donald M. Robertson, M.D.	Robert G. MacBride, M.D.
York County Medical Society	
Charles W. Kinghorn, M.D., Secretary	
Paul S. Hill, Jr., M.D.	Kenneth E. Leigh, M.D.
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Continued on Page 93



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Precautions: Mild leukopenia has been reported during Flagyl use; total and differential leukocyte counts are recommended before and after treatment with the drug, especially if a second course is necessary. Avoid alcoholic beverages during Flagyl therapy because abdominal cramps, vomiting and flushing may occur. Discontinue Flagyl promptly if abnormal neurologic signs occur. Exacerbation of moniliasis may occur. In amebic liver abscess, aspirate pus during metronidazole therapy.

Adverse Reactions: Nausea, headache, anorexia, vomiting, diarrhea, epigastric distress, abdominal cramping, constipation, a metallic, sharp and unpleasant taste, furry or sore tongue, glossitis and stomatitis possibly associated with a sudden overgrowth of *Monilia*, exacerbation of vaginal moniliasis, an occasional reversible moderate leukopenia, dizziness, vertigo, incoordination and ataxia, numbness or paresthesia of an extremity, fleeting joint pains, confusion, irritability, depression, insomnia, mild erythematous eruptions, "weakness," urticaria, flushing, dryness of the mouth, vagina or vulva, pruritus, dysuria, cystitis, a sense of pelvic pressure, dyspareunia, fever, polyuria, incontinence, decrease of libido, nasal congestion, proctitis, pyuria and darkened urine have occurred in patients receiving the drug. Patients receiving Flagyl may experience abdominal distress, nausea, vomiting or headache if alcoholic beverages are consumed. The taste of alcoholic beverages may also be modified. Flattening of the T wave may be seen in EKG tracings.

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For Trichomoniasis. In the Female: One 250-mg. tablet orally three times daily for ten days. Courses may be repeated if required in especially stubborn cases; in such patients an interval of four to six weeks between courses and total and differential leukocyte counts before, during, and after treatment are recommended. Vaginal inserts of 500 mg. are available for use, particularly in stubborn cases. *When the vaginal inserts are used,* one 500-mg. insert is placed high in the vaginal vault each day for ten days and the oral dosage is reduced to two 250-mg. tablets daily during the ten-day course of treatment. Do not use the vaginal inserts as the sole form of therapy. *In the Male:* Prescribe Flagyl only when trichomonads are demonstrated in the urogenital tract, one 250-mg. tablet two times daily for ten days. Flagyl should be taken by both partners over the same ten-day period when it is prescribed for the male in conjunction with the treatment of his female partner.

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BERNARD O. NEMOITIN, M.D., Stamford

New Hampshire Medical Society
THEODORE S. SMITH, M.D., Manchester

Medical Society of the State of New York
THOMAS F. MCCARTHY, M.D., Bronx

The Rhode Island Medical Society
HANNIBAL HAMLIN, M.D., Providence

Vermont State Medical Society
Thomas D. Trainer, M.D., Burlington

Delegates to Out-of-State Meetings

The Massachusetts Medical Society
STANLEY E. HERRICK, JR., M.D., Lewiston

Medical Society of the State of New York
CHARLES R. GLASSMIRE, M.D., Portland

The Rhode Island Medical Society
LEONARD G. MIRAGLIUOLO, M.D., Bangor

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Technical Exhibits

Abbott Laboratories, North Chicago, Illinois 60064

The Alkalol Company, Taunton, Massachusetts 02780
Representative: Mr. Edward W. LeClair

Associated Hospital Service of Maine, 509 Forest Ave., Portland, Maine 04101

Bristol Laboratories, P. O. Box 657, Syracuse, New York 13201
Representatives: Mr. Robert Pogorelc and Mr. Richard Green

Burroughs Wellcome Company, 3030 Cornwallis Rd., Research Triangle Park, North Carolina 27709
Representatives: Mr. George Farnsworth and Mr. Charles Hickman

Crowley & Gardner/Surgeons & Physicians, Inc., 15 Stuart St., Boston, Massachusetts 00116

Hoeschst Pharmaceutical Company, Route 202-206 North, Somerville, New Jersey 08876

Lakeside Laboratories, Inc., Milwaukee, Wisconsin 53201
Representatives: Mr. Harry Eordekian and Mr. Charles Weiner

Lederle Laboratories, Pearl River, New York 10965

Mead Johnson & Company, Evansville, Indiana 47721

Merck Sharp & Dohme, West Point, Pennsylvania 19486
Representatives: Mr. David Vincent and Mr. Michael Jackson

Parke, Davis & Company, Detroit, Michigan 48232
Representatives: Mr. M. F. Dole and Mr. E. E. Giroux

A. H. Robins Company, 1407 Cummings Dr., Richmond, Virginia 23220

Ross Laboratories, Columbus, Ohio 43216
Representatives: Mr. Ed McCue, Mr. Ron Brody and Mr. Dick Kaufman

Sandoz Pharmaceuticals, E. Hanover, New Jersey 07936
Representatives: Mr. Herman L. Emidy and Mr. Robert Vigneau

G. D. Searle & Company, Box 5110, Chicago, Illinois 60680
Representatives: Mr. David E. Gleason and Mr. Tom K. Ordway

DEAN H. FISHER, M.D.
COMMISSIONER

State of Maine

Department of Health and Welfare

The Laser Saga

MARTIN F. NEEDHAM*

One of the major charges of Comprehensive Health Planning is that of identifying health resources, facilities and manpower, in a given geographic area, be it Region or State, and determining whether these resources are being utilized in an effective way. There is today a serious need for evaluating effective utilization patterns. This is illustrated in a national survey of 777 hospitals that are equipped to do open heart surgery. Of these almost 30 percent had not undertaken one such case during the year studied. Of the 548 hospitals that had cases, 87 percent did fewer than one operation per week; 77 did not average even one operation per week; and 41 percent averaged under one per month.

Considering this type of national inefficiency, and recalling the proliferation of cobalt bombs in Maine in the not to distant past, it was with a strong conviction of its role in health planning that the State Comprehensive Health Planning Agency accepted a request made by the Kennebec Valley Regional Health Agency that the State Agency review the need for and the desirability of the installation of a Laser Beam, or Beams, in Maine. The Health Planner of the Kennebec Agency said in an initial request letter, "A Laser could serve the entire State and certainly at least the upper half, and therefore, that meant the service area was greater than the area of responsibility of Kennebec Valley Comprehensive Health Planning." Implied in this statement was the need for a state-wide analysis to determine the need, if any, and location for a Laser Beam for Maine.

Shortly thereafter, a similar request was submitted to the State Agency by the Southern Maine Comprehensive Health Association. Mr. Stanley Hanson, director, stated in his request that "because of the exotic nature of such an installation (laser equipment) and the expense involved, it appears to be a question of State-wide magnitude and therefore, it seems more appropriate that a study be done by the "A" agency, rather than the several regional agencies."

With this mandate for action, an ad hoc committee was formed of members of the State Health Planning Council – both providers and consumers of medical care – one representative from the Maine Regional Medical Program and two ophthalmologists from regions outside those with an interest in laser equipment.

The ad hoc committee, during its initial session, listed types of information needed in order to make an intelligent decision vis-a-vis equipment in Maine:

1. A survey of ophthalmologists in Maine to determine the incidence of specific diagnosis for which a laser beam could be used.
2. A survey of leading ophthalmologists in medical centers in various sections of the U. S. who have used the laser equipment.
3. Perusal of medical journals for articles on use of laser equipment in ophthalmologic procedures.
4. The incidence of diabetes in Maine since diabetic retinopathies currently make up the major population for use of the laser beam.

The following is a summary of the findings of this Committee:

Response of Ophthalmologists

The 42 licensed ophthalmologists practicing in Maine were each mailed a questionnaire concerning the Laser Beam and its relationship to ophthalmologic procedures.

Nearly two-thirds of the total sent were returned. However, five of these were discounted as the ophthalmologists had either only been practicing in Maine for six months or less or else the questionnaire was only partially answered. Even so, the remaining numbers constituted slightly over 50 percent of the ophthalmologic population, a statistically significant response.

Two of the questions asked were: How many patients had the ophthalmologist sent out of state for laser or photocoagulation treatment over a 12 month period and would he use these forms of treatment more if they were available in Maine.

The projected number of referrals out of state by all 42 ophthalmologists, based on the 22 responses, was about 155. Fifty percent of these doctors said they would use this form of treatment more if it were available in Maine.

The following is the average number of patients seen per ophthalmologist per month for specific ophthalmolo-

*Health Planner, Comprehensive Health Planning Agency.

gical diagnoses for which laser and photocoagulation treatment can be used:

Diagnoses	*Average No. of Patients per month*
Diabetic Retinopathy	26
Detached Retina	7.6
Senile Macula Degeneration	61
Chronic Macular Edema	8.4

Diabetic retinopathy is the area of major concern in laser treatment. Use for the other diagnoses listed is still experimental. In the case of diabetic retinopathy, approximately 15% of these cases will develop neovascular retinopathy and are at that time candidates for laser treatment.

The ophthalmologists were asked for their opinions of laser therapy. Most thought the results of treatment of ophthalmological problems using laser therapy was fair to good.

Survey of U.S. leading Ophthalmologists who have used laser equipment:

A telephone survey was conducted with six leading ophthalmologists throughout the country who have used laser equipment, particularly the Argon Green type. Many of these same doctors have also published articles in leading medical journals on their experience in using laser equipment.

The general questions asked of these doctors were:

—For what diagnoses is the laser beam used
—Advantages of laser over photocoagulators
—The hazards in using laser equipment
—The degree of proficiency needed
—The degree of success
—The cost to patients

The major diagnosis for which these doctors used laser therapy was diabetic retinopathy. They felt the more concentrated focus of the laser beam gave it an advantage over other therapy in the more difficult cases. The major hazard in using the laser beam was the significant danger of hemorrhaging. Proficiency of use is enhanced by continuous use. Success is achieved in approximately 60% of the cases. The cost to patient is about $300-$400 per visit.

Estimated incidence of diabetic retinopathy in Maine

The National Diabetes Association has used a rough figure of 2-3 percent of a population as the incidence of diabetes within that population or approximately 2.5 percent.

2.5 percent of Maine's 1970 population is approximately 25,000.

If the major portion of the diabetic population is 40 years and over, then that population count is the one from which the diabetic population is drawn.

Population 40 years and over in Maine 1970 = 366,569.

We will assume that 90 percent of these 25,000 diabetics are 40 years and over, which totals about 22,000 people. The diabetic retinopathy population will be drawn from the population 60 years and over. Thus the ratio:

$$\frac{22{,}000}{366{,}569} = \frac{x}{160{,}124}$$

x = approximately 10,000 diabetics in Maine with diabetic retinopathy.

National figures estimate that 35 percent of diabetics are undetected. If we take 65 percent of the diabetic retinopathy population, we eliminate those not detected and thereby not being treated. We develop a figure of approximately 6,500 treated diabetic patients with diabetic retinopathy in Maine.

If there are 6,500 treated diabetics with diabetic retinopathy, about 15 percent will have developed vascular retinopathy.

$$6{,}500 \times 15 \text{ percent} = 1{,}000$$

On December 15, the State Health Planning Council's Ad Hoc Laser Beam Committee held its final meeting. At this time it examined all available evidence as related to laser beams for ophthalmological procedures and the prospect of laser usage in Maine. The Committee determined that sufficient information had been generated from which to draw conclusions and to make appropriate recommendation. The Committee concluded:

a. that the Argon-Laser Beam is the most advanced instrument of its kind for use in ophthalmological procedures, particularly diabetic retinopathy.
b. that the Argon-Laser Beam has been successful in treating many advanced cases of diabetic retinopathy.
c. that although there may be some need for laser equipment in Maine, there is not enough support evidence to indicate two installations for the present and that a certain degree of unnecessary duplication (based upon need) might well exist with a laser based in both Boston and Portland.
d. that southern Maine people suffering from diabetic retinopathy are relatively near to Boston (one of the world centers with respect to treatment for eye diseases) where they could go for laser treatment.
e. that a centrally located laser beam would be more accessible geographically to a greater percent of Maine people than one in the southern part of the State.
f. that the most effective and proficient use of the laser would occur in an area where there is an active group practice of ophthalmologists.
g. that ophthalmologists in the Waterville area are well versed in the use of laser equipment, having completed courses and seminars on its use, and having kept current on all developments in laser ophthalmologic therapy.
h. that the approval of only one laser beam in Maine at this time might well prevent the undesirable proliferation of other lasers throughout the State.

Therefore, the Committee recommended that:

A. Maine Medical Center not to be considered as a location for laser at this time.

Continued on Page 96

Toward a Constructive Peer Review Process

DARWIN L. HATHEWAY, M.S.*

For nearly a decade, there has been much legislative and executive attention given in public to different aspects of a basic idea. "Medical audit," "peer review," and "utilization review" are some of the labels that have been used. The basic idea is best called "retrospective review." At the present, less than 1% of the physicians providing primary and specialty care are active participants in any type of comprehensive retrospective review, even though AMA has issued a Peer Review Manual.

Why?

The federal government definition of misutilization implies the basic answer. Misutilization is defined as –

> "Any usage of the Medicaid program by any of its providers and/or recipients not in conformance with both state and federal regulations and laws (includes fraud, abuse, and defects in level and quality of care)."

There is no real argument with the definition. But, it reflects the thinking of the majority, viz: In the delivery of medical care there is –

- Either adequate or inadequate level of care, and
- Either adequate or inadequate quality of care.

But what about the possibility of –

- Either excessive, appropriate, or insufficient quantity (level) of care, and
- Either superior, reasonable, or inferior quality of care,

in any given case? In fact, it is not only possible that in some cases both excessive quantity and superior quality of care is delivered, but it actually happens on a daily basis in the modern teaching hospital. It also happens, but not necessarily on a daily basis, in other practice environments.

*Department of Health and Welfare, State of Maine.

The point is that any retrospective review proposed must provide for identifying the superior quality of care as well as that which is reasonable or inferior (and equivalently for the level of care). The explicit identification of the superior quantity and quality of care is a prerequisite to the eradication of inferior quantity or quality, since it is only the physician who demonstrates excellence of practice that can educate the inept physician. There are other ways of eliminating the inferior physician, but education is the only method that will also alleviate the shortage of physicians at the same time.

In other words, the objective of retrospective review must primarily be to identify (1) the topics to be currently included in continuing physician education programs, and (2) the instructors and students for the programs. Since the state of the medical art and science is continuously changing, it is necessary that all physicians participate in retrospective review. And last, but not least, all of the medical care experience of each and every physician is the resource that is vital to constructive retrospective review, for medical insight is not reserved to the researcher, super-specialist, or professor.

Therefore, let us review the history (since 1910) of the efforts to develop retrospective review from this education perspective, and make a fresh attack on the problem of devising systems for local application that are –

- Controlled by the physicians,
- Effective (the systems are demonstrably successful), and
- Efficient (they do not require significant man-hour contributions of the physician's time either as general participant or as functioning system component).

And, keep the public informed.

THE LASER SAGA — *Continued from Page 95*

B. That the State Health Planning Council support the establishment of laser equipment in Waterville.

C. That the Waterville group, subsequent to installation of laser, gather data as to laser usage by
 a. number of cases
 b. visits per case
 c. diagnoses treated
 d. actuarial factors
 e. referral patterns

and report this information annually to the "A" agency for a period of 36 months for its analysis.

The above recommendations were developed as a result of an intensive analysis of laser usage and its application to Maine by a Comprehensive Health Planning Committee committed to, and concerned with, rational health planning in the State of Maine.

Consumer Advisory Councils

Maine Blue Cross and Blue Shield, in an effort to give the consumer a more direct voice in the determination of the quality of the health care and coverage available to him, initiated four regional Consumer Advisory Councils. The councils, which have been in existence about a year, have already provided many innovative ideas for the Blue Cross and Blue Shield staff to consider.

The councils, representing regions centered around Aroostook, Bangor, Augusta-Lewiston, and Portland, consist of representatives of the business community, labor leaders, housewives, group and non-group members of Blue Cross and Blue Shield, and representatives from official consumer-oriented groups, such as Community Action Project agencies, and from local government. The councils, averaging from 15 to 20 members in size, were established to provide a medium for obtaining subscriber opinion on current and proposed programs of health care coverage as well as corporate policies. They were also designed to obtain subscriber ideas and suggestions for improved services both in the fields of health care and health coverage. Blue Cross and Blue Shield has also used the council meetings to report to subscribers on current and future plans and policies.

Each regional consumer group determines the size of its membership, frequency of meetings, agenda, and elects its officers from its membership. Blue Cross and Blue Shield District Managers from the local offices of the respective regions act as recording secretaries for the meetings and arrange to have Blue Cross and Blue Shield office staff, medical personnel, or other resource persons available when the agenda calls for discussion in which some special subject or expertise is being reviewed and discussed.

The importance of the consumer councils to the health care system cannot be minimized. They serve as a viable interface between health care and coverage providers on the one hand and a cross section of the consumer community on the other, providing both an outlet for consumer questions and a medium through which the consumer can be educated in the intricacies of the health care field. With the popularity of unwarranted, one-sided attacks on health care practices growing quickly in the media, consumers must be sought out by the health care and health coverage providers and given enough knowledge of the field to make their own educated judgements. The Consumer Advisory Councils, in their first year of operation, seem to have been successful in this respect, and Blue Cross and Blue Shield has made booklets and films on health related subjects available to council members in the hope that they will pass their education on to fellow consumers.

Any consumer group, to be successful, must be independent in nature. To this end, the articles of organization of the Consumer Advisory Councils specify that the councils will be autonomous, with Blue Cross and Blue Shield providing facilities for preparing notices, minutes of meetings, and other paper work. Blue Cross and Blue Shield also serves to provide technical information and resource material as requested by each council, but there is no actual Blue Cross and Blue Shield staff membership on the councils, and the councils are self-governing and select their own membership.

Topics of Interest

Recent Consumer Advisory Council meetings across the State have brought about stimulating discussions ranging from Blue Cross and Blue Shield policy and programs to proposed national health programs. At a meeting of the Southern District Consumer Advisory Council, where Blue Cross and Blue Shield President Richard F. Nellson was a guest, the composition of the Blue Cross and Blue Shield Board of Directors was questioned by a council member. The members of the council felt that the present board, consisting of eight doctors, eight representatives of contracting hospitals, and eight consumers, does not suitably represent the consumer's interests. It was explained by an executive of Blue Cross and Blue Shield that the Consumer Advisory Councils were formed partially to meet this need for increased consumer input. The Board of Directors must have a perfect balance due to the fact that the Associated Hospital Service of Maine administers both Blue Cross and Blue Shield, requiring an equal number of representatives of participating physicians and contracting hospitals as well as an equal number of consumer representatives. To adjust to this situation without disturbing the balance of the Board of Directors, the council approved a motion recommending that the chairmen of the four Consumer Advisory Councils attend all full meetings of the Board in a non-voting, advisory status.

Main topics of interest at the Central and Eastern Consumer Advisory Council meetings included discussion of the possibilities of reducing health care costs through increased out-patient benefits. This gave rise to an examination of some of the difficult problems involved in such a program and a general

Continued on Page 99

Maine Heart Association Notes
20 Winter Street, Augusta, Maine

The Stokes-Adams Syndrome Mechanisms and Treatment — Part II

Robert A. O'Rourke, M.D.*

During the past few years, markedly improved cardiac monitoring has more precisely elucidated the underlying electrocardiographic mechanisms producing Stokes-Adams syncope. Moreover, the rapid advances in electrical pacemakers have contributed significantly to the prevention and treatment of arrhythmia-induced syncope.

Electrocardiographic Mechanisms

At one time ventricular standstill was thought to be the sole mechanism responsible for Stokes-Adams syncope and it is still considered the most frequent underlying rhythm disturbance. However, it is now established that Stokes-Adams attacks may also be due to extreme bradycardia or to a variety of tachyarrhythmias, particularly ventricular tachycardia and ventricular fibrillation. Continuous monitoring has demonstrated that several electrocardiographic mechanisms may produce syncope in the same patient.

The arrhythmias responsible for Stokes-Adams syncope may be divided into seven groups:

1. *Sudden interruption of atrioventricular impulse transmission causing transient asystole.* When the cardiac rhythm changes from a sinus mechanism or incomplete A-V block to complete heart block, a period of asystole often occurs before the junctional or ventricular pacemaker assumes rhythmicity at its inherent rate. This "warm-up period" varies from ten to ninety seconds and is termed the "preautomatic pause."
2. *Atrial standstill with failure of the junctional pacemaker resulting in ventricular asystole.* When sinoatrial node impulse formation ceases and the A-V junctional tissue fails to assume rhythmicity, ventricular asystole results. This mechanism for Stokes-Adams syncope may occur in patients with inferior wall myocardial ischemia and may be influenced by vagal hyperactivity. This is an uncommon mechanism of arrhythmia-induced syncope.
3. *Asystole in the presence of established heart block.* This arrhythmia may result from a shift in the pacemaker below the area of non-conduction to still a lower focus resulting in a period of asystole resembling the "preautomatic pause."
4. *Paroxysmal ventricular tachycardia or fibrillation in the presence of complete heart block.* A slow heart rate during complete heart block predisposes to rapid impulse formation from ectopic foci. Either ventricular tachycardia or fibrillation may then ensue with syncope resulting.
5. *Paroxysmal ventricular tachycardia or fibrillation during normal A-V conduction.* These arrhythmias are most frequently observed in patients with acute myocardial infarction but have also caused syncopal episodes in patients with apparently normal hearts.
6. *Supraventricular arrhythmias.* Supraventricular tachycardias and bradycardias associated with syncopal episodes have been demonstrated by continuous electrocardiographic monitoring in many patients with the Stokes-Adams syndrome. Frequently the sinus bradycardia predisposes to episodic supraventricular tachycardia ("bradycardia-tachycardia syndrome"). In patients with coronary artery disease, tachycardia increases myocardial oxygen demands and decreases left coronary artery diastolic blood flow, often decreasing cardiac output despite the increase in heart rate. Syncopal episodes may result.

 Sinus bradycardia, sinoatrial block and sinoatrial arrest may cause syncope in patients with heart disease who are unable to increase stroke volume sufficiently to maintain adequate cerebral blood flow.
7. *Combined forms.* Uncommonly, paroxysmal tachyarrhythmias may be followed by a period of asystole due to a delay in automaticity of pacemakers which have been suppressed during the tachycardia.

 The recognition that different electrocardiographic mechanisms may produce syncope in the same patient on different occasions is important in therapy.

Treatment

The aim of therapy for arrhythmia-induced syncope is threefold: (1) prompt restoration of the circulation during cardiac arrest, (2) restoration of an

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Prepared by the Maine Heart Association for this Journal.

intrinsic cardiac rhythm adequate to maintain cerebral blood flow, and (3) prevention of recurrent episodes.

Medical Treatment. The medical therapy of complete heart block includes the correction of potential contributing factors such as acidosis and hyperkalemia. The sympathomimetic drugs, which include parenteral epinephrine, oral ephedrine and isoproterenol by either route of administration, are primarily indicated when ventricular asystole or bradycardia occurs in complete heart block and intracardiac pacing is unavailable. These agents act by increasing A-V conduction, increasing the rate of the ventricular pacemaker, and shifting the lower pacemaker to a higher focus in the common bundle or A-V junctional tissue. During an attack of arrhythmia-induced syncope due to bradycardia, isoproterenol should be given by intravenous infusion during ECG monitoring so that its administration can be rapidly terminated if ventricular irritability results.

The vagalytic agent atropine may increase the ventricular rate in complete heart block complicating a recent inferior wall myocardial infarction. Atropine is often successful in the treatment and prevention of Stokes-Adams syncope due to sinus bradycardia, sinoatrial block and bradycardia-tachycardia syndrome.

Steroids through their anti-inflammatory and hypokalemic effects have been occasionally successful in improving A-V conduction in patients with complete heart block due to myocarditis or acute myocardial infarction.

The trisodium salt of EDTA (ethylenediomine tetra-acetic acid), a calcium chelating agent, has been used in the treatment of complete heart block due to digitalis intoxication when electrical pacing is unavailable.

Pacemaker therapy. Because of the unpredictable, potentially fatal nature of Stokes-Adams attacks and the inconsistent results and frequent complications with drug therapy, electrical pacing has become the treatment of choice when syncope occurs in patients with complete heart block.

The general indications for pacemaker insertion include: (1) complete heart block associated with congestive heart failure, (2) complete heart block with Stokes-Adams syncope, (3) complete heart block following acute anterior or inferior wall myocardial infarction, (4) partial A-V block (second degree block) complicating anterior wall myocardial infarction, and (5) post surgical complete heart block.

Recent reports have demonstrated the feasibility of suppressing episodes of ventricular tachycardia and fibrillation in patients with normal A-V conduction by pacing the atrium or the ventricle at a rate faster than that present between episodes of ventricular tachyarrhythmia. Electrical pacing has been employed successfully in combination with propranolol and cardiac sympathectomy in the treatment of otherwise unresponsive ventricular arrhythmias. Rapid atrial pacing has been used successfully in the treatment of supraventricular tachycardiac including atrial flutter and paroxysmal atrial tachycardia.

In patients with syncopal attacks due to ventricular tachycardia or ventricular fibrillation complicating complete heart block, the emergency insertion of a ventricular pacemaker is strongly indicated. A ventricular pacemaker is the only means available for the long-term prevention of ventricular tachyarrhythmias in patients with heart block. If transient ventricular asystole complicates complete heart block, a ventricular pacemaker is also indicated. A single Stokes-Adams attack in a patient with complete heart block is sufficient reason for pacemaker insertion.

CONSUMER ADVISORY COUNCILS — *Continued from Page 97*

discussion of the whole range of cost-reducing strategies now being used or considered, such as utilization review, peer review, and physician certification of the need for hospital care after a certain number of days depending on diagnosis, ensued. Other topics considered by the councils included the possibility of future dental care programs, health maintenance organizations, and the establishment of a State-wide blood bank. The Northern District Consumer Advisory Council is still in the organization stage, but it will soon also be contributing to the consumer input into Maine Blue Cross and Blue Shield.

The Consumer Advisory Councils provide Blue Cross and Blue Shield with an accurate, current indication of public thinking and, conversely, a broad representative segment of the public has an opportunity to become intimately aware of immediate health care problems and long-range trends. With this knowledge and experience, Consumer Advisory Councils can contribute an important advisory point of view with which Maine Blue Cross and Blue Shield can temper decisions affecting its operations.

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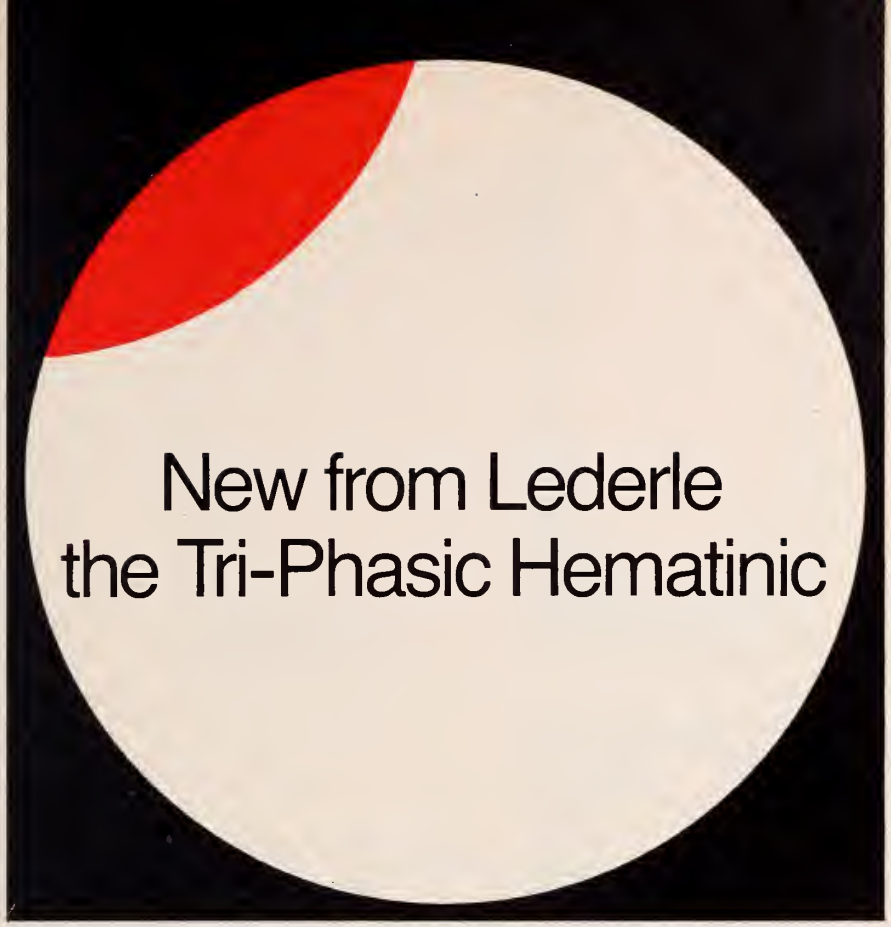
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News, Notes and Announcements

"Tactics of Psychotherapy"

A lecture with clinical demonstrations will be given by William F. Murphy, M.D. at St. Mary's General Hospital in Lewiston, Maine at Desaulniers Hall on Saturday from 10:00 a.m. to 12:00 noon, June 3, 1972. Dr. Murphy is a nationally known psychoanalyst, author of three books on psychodiagnostics and short-term analytically oriented therapy. In addition to being in private practice, he is Assistant Professor of Psychiatry, Harvard Medical School and a member of the faculty of the Boston Psychoanalytic Institute.

All professional workers in mental health and related fields are invited to attend. There is no admission fee. Any inquiries regarding this program should be directed to Stanley Kawliche, Ph.D. at the Child and Family Mental Health Services, 106 Campus Avenue, Lewiston, Maine 04240. Telephone: 783-9141.

International College of Surgeons

The annual midsummer meeting of the International College of Surgeons will be at the Sagamore Hotel in Lake George, New York on July 5 through 10, 1972.

Registration fee for non members is $20.00 and registration can take place directly at the time of the meeting.

For information, write to William R. Updegraff, M.D., General Program Chairman, 202 Hooker Avenue, Poughkeepsie, New York 12603.

Maternal and Child Health Program Announces Postgraduate Courses

The Maternal and Child Health Program of the University of California School of Public Health at Berkeley announces postgraduate courses of instruction for pediatricians, obstetricians, and other physicians interested in receiving training in the field of Maternal and Child Health. These programs all lead to the degree of Master of Public Health. *Tax-exempt* Fellowships are available, consisting of support for the trainee and his dependents, tuition and fees.

Program areas at the present time include nine-month programs in Maternal and Child Health, Health of School-Age Children and Youth, and Family Planning. Twenty-one month programs in Care of Handicapped Children, Comprehensive Health Care and Perinatology are also available.

Applications are now being accepted for the group entering September, *1973*. For information, write to Helen M. Wallace, M.D., School of Public Health, University of California, Berkeley, California 94720.

World Health Organization Fellowships Available to United States Health Workers

The World Health Organization will make available in 1973 a limited number of short-term fellowships for travel abroad related to the "improvement and expansion of health services" in the United States. This support is to United States citizens engaged in operational or educational aspects of public health.

In selecting applications, a special committee will consider the professional background of the individual, the field and locale of the study proposed, and the utilization of the experience by the applicant on his return. Employees of the Federal Government are not eligible. Applications will not be considered for the pursuit of pure research projects, for attendance at international meetings, nor from students in the midst of training at either the undergraduate or graduate level. Applicants may not be more than 55 years of age.

A fellowship award will cover per diem and transportation. Except in very unusual circumstances, it will be limited to short-term travel programs averaging about two months. Employers of successful applicants will be expected to endorse applications and to continue salary during the fellowships.

Priorities of award will be established up to the total of the funds available. The deadline for the receipt of completed applications is September 30, 1972.

Further information may be obtained from Dr. Robert W. Jones, III, Chief, Foreign Students Education Branch, Fogarty International Center, National Institutes of Health, Room B2CO5A, Building 31, Bethesda, Maryland 20014.

County Society Notes

LINCOLN-SAGADAHOC

The regular monthly meeting of the Lincoln-Sagadahoc County Medical Society was held at The Ledges in Wiscasset, Maine on February 15, 1972.

The meeting was called to order at 9:20 p.m. by the President, Dr. Frank O. Avantaggio, Jr. The minutes of the last meeting were read and accepted.

Old Business: The nominating committee presented the following slate of officers:

President: Dr. Anthony J. Keating, Bath
Vice-President: Dr. Peter A. Evans, Brunswick
Secretary-Treasurer: Dr. George W. Bostwick, Newcastle
Delegates to the M.M.A. House of Delegates: Drs. Nelson P. Blackburn, Bath and Mary J. Tracy, Damariscotta. Alternates: Drs. Elihu York, Brunswick and Richard C. Leck, Bath
Censors: Drs. John F. Dougherty, Bath, Carl R. Griffin, Jr., Boothbay Harbor and Samuel L. Belknap, Damariscotta
Program Committee: Drs. Henry A. Hudson, Southport Island and Nelson P. Blackburn

Nominations were closed by vote, and the slate was elected by unanimous acclamation.

Dr. Avantaggio presented the shillelagh of Office to Dr. Keating. Dr. Keating made a short speech of acceptance and asked for *New Business:* Dr. Bostwick extracted a letter from Dr. Jacobson complaining of a radio program on WCME which implied that an optometrist is a "qualified eye specialist." The motion was made and seconded that the text of the radio interview be requested from WCME for future perusal: carried.

Dr. Griffin mentioned that statements from Blue Cross and Blue Shield, requesting payments to the Maine Medical Association, were slow in arriving or were never received, resulting in his being dropped from the program.

Dr. Paul A. Fichtner reported for the Executive Committee:

A grant request has been submitted to the U.S. Government for funding the State Peer Review Committee. This Committee is functioning now.

An effort will be made to investigate the malpractice insurance situation in the State and appraise the "no-fault" concept.

The situation of the former director of Pineland Hospital and Training Center was outlined, and the background of the changes in the Commission of Mental Health and Institutions was discussed. A question whether the director of a State mental institution must be a physician was posed. An example of the lack of understanding between physicians and the new lay hospital administrators was given. It has been voted that the Maine Medical Association hire counsel to stand as *amicus curiae* in litigation resulting from the Pineland problem.

Dr. Tracy reported the last interim meeting of the House of Delegates:

1. The House of Delegates enthusiastically supports the current efforts to establish the concept of a medical school in Maine.
2. Mr. Ettlinger, the lay administrator of Augusta State Hospital, appeared before the House of Delegates and showed the lack of mutual appreciation of viewpoint and competence to judge necessity for hospital admission. The whole field of psychological treatment in the area was opened to discussion.
3. A program of nurse-midwifery training at the Maine Medical Center was announced.

Dr. Bostwick asked for an expression of opinion of continuing education and requirements for membership in M.M.A. or for re-licensure to practice. Most members felt that some continuing education credits should be a requirement for periodic re-licensure.

The meeting was adjourned at 10:50 p.m. by Dr. Keating.

GEORGE W. BOSTWICK, M.D., *Secretary*



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The Journal
of the
Maine Medical Association

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Reflections of a Woman Physician After 34 Years of Practice in the State of Maine

Gisela K. Davidson, M.D., F.C.C.P.

In May of 1938, I had the good fortune to arrive in the United States from Vienna, Austria, which at that time had been occupied by Hitler for two months. It is needless to reflect on the horrors experienced in occupied Austria because enough has been written about it. When I arrived, I was met by my husband, who had left Vienna two months ahead of me. I was also met by relatives and friends. They all were very helpful in trying to find a suitable working place for both my husband and me.

We had graduated from the University of Vienna Medical School almost three years prior to arrival. We both had a rotating internship and had begun our specialized training. I held a residency in rheumatology. The residency was abruptly interrupted on March 13, 1938, with the takeover of Austria by German Nazis. My husband, who had planned to come to the United States several months prior to the occupation and who was in the possession of an American immigration visa, was fortunate enough to leave only a week after the takeover.

On arrival in the U.S.A., we had the following choices of placement: an internship in Philadelphia without pay or a residency in a tuberculosis sanatorium in the State of Maine. We accepted the position in Maine.

This decision proved to be a very fortunate one and in June 1938, we started our residency at the Western Maine Sanatorium, a State institution for the treatment of tuberculosis. It would not be fair to reflect on my medical practice without mentioning that the people of Maine whom I had an opportunity to meet in the sanatorium gave me back the faith in humanity which I had lost completely during the weeks of Nazi occupation in Vienna. I found the people of Maine most considerate and helpful. The language barrier, which must have been trying to my patients, was beautifully crossed by their understanding, kindness and helpfulness. I was able to take histories and do my physical examinations with the help of a small dictionary and the cooperation of my patients. So I embarked on five years of institutional service and also became a member of the staff of the Central Maine General Hospital in Lewiston where 35 beds were reserved for the surgical treatment of the sanatorium patients. While these patients were under the care of the hospital staff, regular twice weekly calls were made on these patients by the sanatorium physicians.

During this time, the Tuberculosis Control Division of the State of Maine was also established as a separate unit. In 1943, a large scale tuberculosis detection program was started under the influence of war inductions. My position in the sanatorium gave me an opportunity to meet and work with the people in the Tuberculosis Control Division of the State Bureau of Health, and when I left the sanatorium and settled in Portland in 1943, I was approached by the Department of Health and Welfare to act as a consultant for the Tuberculosis Control Division. I kept this position up to my retirement from the State Bureau of Health in 1969.

My private practice in Internal Medicine in Portland was naturally directed and remained chiefly in the field of tuberculosis and chest diseases in general. I shared my private practice with my husband, who pursued the same specialty. My husband and I also staffed the City Dispensary Clinic which handled tuberculosis out-patients, and later when the City Dispensary was dissolved and the clinic transferred to the Maine Medical Center, I continued to work in the Chest Clinic until 1969.

While still in the Western Maine Sanatorium, I took out time from my job long enough to deliver our first daughter. Our second daughter was born in Portland while I was actively engaged in private practice. I mention this because I hear so often the argument "that women are by nature meant to be mothers and that interferes with the practice of medicine." It is my experi-

ence and the experience of many of my female colleagues that pregnancy and delivery are natural processes and not meant to be traumatic incidents in the life of a woman. Is not a housewife expected to deliver, but still carry on the duties as a wife and mother? In my case, it was not only my desire to continue in medical practice, it was also a necessity which forced me to work until two days before delivery and to resume practice shortly after.

Therefore, the arguments so often used that women students should not be admitted to medical schools because the "valuable place" is occupied by somebody who may not practice or who will practice only part-time does not hold true. If only men would understand that women are people. Women, just like men, enter medical school because of the simple desire to pursue a professional career. Their goals are not different from the goals of men. Women who are motivated to practice medicine will find a way to adjust their life so that they can combine their career with a normal home situation.

How about men? There are those who are so involved in medicine and its challenges that they neglect their private lives, but one never hears this brought up as an argument against accepting men in medical schools. It is also proper to point out that men have to interrupt their professional life to serve their country. In the United States only two years, but in other countries anywhere from two to seven years of military duty may be required. If a physician has an opportunity to finish his education before military service, he is fortunate enough to fulfill his military obligation in his profession. However, if he does not get a deferment, then two years of his life are taken out of his professional career before or after college, and I am wondering if medical schools give this point of view any consideration. Is it any longer than a woman would need for pregnancy and delivery?

The recent action in the United States Senate, the so-called Equal Opportunity Employment Act, specifically referring to sex, has unleashed many new thoughts and will force the population at large to take another look at women in general, and women in medicine in particular. The popular magazine, TIME, in its March 20, 1972 issue, devoted the entire issue to the American woman. In it, we find interesting facts and thoughts expressed worth reflecting upon. "A decade ago, women accounted for just 6% of the nation's 260,000 doctors; today they are 7.6% of the 345,000 practitioners." When one reviews the figures, it almost seems hopeful because a larger percentage of women have entered medicine and had been apparently accepted by the population and by their colleagues. But when one compares these figures with the population growth and realizes that over 50% of the total population of the United States is female and that they comprise over 40% of the labor force, one wonders how much progress women have made in medicine in the United States even by statistics. It is even more depressing when one analyzes the distribution of women within the medical specialties. Only 1% of the general surgeons are women and these are among the highest medical earners. The irony is that women are supposed to be good at details and good in doing intricate work with their hands. Therefore, one wonders why surgery is a field which is so very difficult for them to penetrate. Continuing with the interesting statistics supplied by TIME, we find that in the nation's public health field, however, 26% are women. Here again, the highest paid positions are occupied by men. In pediatrics, we find 20% women. All over the world, women physicians have been attracted, and have been expected by their male colleagues, to go into pediatrics as a natural extension of "womanhood." Obstetrics and gynecology, however, have only 6.8% women, even though many female patients might feel more at ease with a woman obstetrician or gynecologist. Why aren't there more women in this specialty? Ob and Gyn, of course, belong to the male-dominated field of surgery, which is, and always has been, difficult for women to enter.

Tradition has placed the woman in the home and the man outside as the "bread winner." World War I and II have changed much of this attitude. Women assumed responsibilities that usually were carried out by men and to the surprise of many, did very well and even exceeded the performance of the male. Male ingenuity and salesmanship have reduced housekeeping to a mere push-button technology. "Woman's place in the kitchen" has become a dull and unimaginative occupation leaving no challenge to the creative mind of woman. Therefore, we will see women more and more invading the previously holy ground of men. Therefore, it seems to me the time has come for the population at large, and the medical profession in particular, to accept the fact that women in medicine are not only here to stay, but are going to increase in numbers as they have done all over the world.

Is there a special contribution women can make in medicine? In my over 30 years of practice of medicine, and in my contacts with male colleagues, I have been convinced more and more that woman's approach to a medical problem is often different from man's and may be healthier than the "logical," "calculating" and so-called "scientific" male approach. Woman is more likely to look at the person behind the disease. She is more patient in listening to complaints which are often non-contributory to the patient's presenting illness, but may be very characteristic of the patient himself. To look only at the EKG, at the x-rays, at the laboratory data and even at the monitor, is not enough as any physician will admit. But to properly discriminate between the presenting symptoms, the available x-ray and laboratory data and the patient's complaints, is the true "art of medicine." Here the woman, who has learned to listen to the daily family problems, has a better "premedical education" to apply this knowledge to the previously mentioned art of medicine. Therefore, regardless what her specialty is, even in the highest ranks of surgery, a good medical judgment can be of greater help to the patient than the knife.

The State of Maine is now in the process of studying the feasibility of a medical school which is supposed to be new and different. It seems regrettable that the plan-

Continued on Page 112

A Case of False Dementing Disease of the Brain: A Curable Illness

ALPHONSE TELFEIAN, M.D.*

Some dementing diseases of the middle age are manifested with disorientation and memory impairment and no neurological or medical evidence other than the psychosis itself.[1] Alzheimer's disease, Pick's disease, even some brain tumors of the frontal lobes fall in this category and may need to be differentiated from the functional psychoses in which sensorium impairment is prominent. It is not the exception that a sexagenarian or older person who develops similar symptoms is diagnosed "Chronic Organic Syndrome;" a hopeless prognosis is formulated and the individual is relegated to a geriatric ward or a nursing home for the remainder of his life (Bucci, 1965; Cameron, 1956; Gallinek, 1948; Telfeian, 1966). Contrariwise, the prognosis of a functional psychosis (such as an Involutional Psychotic Reaction), is benign[2] if appropriate therapy is instituted: recovery may ensue within 5 to 8 weeks.

This report concerns a female, who presented such a diagnostic problem because her symptoms consisted of disorientation, memory impairment, lack of insight, incapacity of sustained mental activity and the history of addiction to alcohol.

Report Of A Case

A psychiatric consultation was performed at the home of this 62-year-old female with a history of a fall sustained two months previously, resulting in a self-diagnosed "whiplash injury" of the neck. The attending physician described her as "confused, depressed, disoriented, quite manic for ten days." Her neurologic examination was otherwise normal. She was known to be addicted to alcohol.

Her mental faculties were clouded by what appeared to be a severe disorientation to time, a quasi-total absence of memory for recent events, and a defective memory for remote events. There was no insight. General information was nil. Capacity for sustained mental activity as measured by calculating and abstract thinking was poor. Mood was inappropriately elated and amorous. She was reexamined two days later. There was no change in the neurologic examination. Her disorientation to time seemed to be a memory defect rather than actual disorientation. Her memory for recent events continued to be severely impaired but she was able to relate delusional experiences which she believed had occurred at the time of the injury. She was convinced that the male officials tried to help her because they were in love with her. Her recall for these subjective events was excellent. Her memory for remote events was improved. Her capacity for sustained mental activity could not be evaluated for abstract thinking but it was improved for calculation. The clinical course indicated that there were waves of relative alertness and confusion and according to the nurse, she was expressing fearful and false ideas.

She was treated with electro-convulsive therapy (ECT) modified with Sodium Pentothal® and Anectine®. She was given 7 ECT's at the rate of 3 a week. She made a very satisfactory response.

Five weeks after onset of therapy, i.e., three weeks after her last ECT, she had made a complete recovery. Two years later, she was still enjoying good mental health.

Discussion

The clinical symptomatology was one of a dementing disease of the brain in a 62-year-old woman with history of drinking and without neurologic findings other than impairment of mental faculties. The differential diagnosis included the pre-senile psychoses (Alzheimer's disease and Pick's disease), Marchiafava-Bignami disease and brain tumor of the frontal lobes. A diagnosis of an Involutional Psychotic Reaction, (Involutional Melancholia), was possible because of the atypical amnesia and the paradox of a severe impairment of recall for recent events as opposed to a proficient memory for the content of her delusions of recent origin.

Involutional Psychotic Reaction is usually an easy diagnosis. In this case, a first step was to postulate that the memory impairment, disorientation, as well as the inability for sustained mental activity were of a functional nature. Indeed, memory for delusional content was present. Abstract thinking and ability to calculate were deficient and due to her inability to concentrate. Another step was to establish that delusions existed. A third step was to reassess the history, the symptomatology and all new data. The result of treatment was the final evidence that the diagnostic conclusions were correct.

Summary

A 62-year-old female with the symptomatology of a chronic organic dementia (alcoholic) was presented. The diagnosis of a functional psychosis was made possible because of the paradoxical absence of memory for recent events even though memory pertaining to her delusions was intact. She recovered in response to 7 electroconvulsive therapies.

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Lithium Therapy for Manic-Depressives in a Large, Poor, Sparsely Populated Catchment Area

Richard Evans, III, M.D.

Oral Lithium therapy has, in the opinion of most workers in the field of psychiatry, become the treatment of choice for manic depressives in the acute manic or hypomanic phase, and also the key to prophylaxis, probably tending to reduce the amplitude of mood swings either up or down and to reduce their frequency, if given on a long-term maintenance basis.[2,9,7,1,10,16,4]

Lithium – Greek for "stone-like" – was discovered in 1818 by Arfwedson.[3] It occurred in spa waters in England and Germany, where its medical and therapeutic career was launched. Its distribution in nature is extensive and diverse, occurring naturally in most ground water and in many vegetables.[9] It was first used in medicine by Sir Alfred Garrod in 1859 for treatment of gout and urinary calculi after in vitro studies showed it helped dissolve calculi. Unfortunately, it was found that the presence in body fluids of other alkaline earth metals – sodium and potassium – made this property ineffective.[8]

It was next advocated as a mild tonic by Gibb, 1864,[11] and as a sedative by Levy in 1874.[14] Weir Mitchell reported it as efficient as sodium or potassium bromide for epilepsy. Other medical properties for various lithium salts were recorded by Squire in 1916,[18] including diuretic, hypnotic and anticonvulsant.

Some deaths resulted from the use of lithium as a salt substitute during the 1940's for cardiac patients.[6]

In 1949, Cade, in Australia, noted that guinea pigs given lithium carbonate became sleepy and lethargic. He then tried it on 10 manic patients and reported excellent results in all 10 cases.[5]

Since then more than 50 studies on the use of lithium in various psychiatric disorders have been reported in the literature and very few of them have found it to be ineffective.[9] It has moved from a position of being considered dangerous and doubtful to its current state of fad and panacea. Neither attitude is correct.[10] The clinical activity of lithium endows it with the property of psychopharmacological specificity in the treatment of mania.[9,16]

Lithium Complications

Numerous cases of euthyroid and hypothyroid goiter in lithium patients have been reported. These have occurred mostly in patients with marginal thyroid function or family history of thyroid disease.[15] Reduction of dosage or thyroid hormone therapy in addition to lithium has usually been enough to reverse these conditions without complete withdrawal from lithium therapy.[15,17] It has also been noted that tricyclic antidepressants and phenothyazines have an anti-thyroid effect and that there is a high incidence of goiter among manic depressives on neither medication. The anti-thyroid effect of lithium has been well demonstrated by several workers however, and may result from competition with iodine for binding sites in the thyroid gland.[15,17]

Other effects of lithium in many cases are mild to modest pretibial edema, usually transient, and a slight lowering of T waves on electrocardiograms.[6] Pretibial edema in lithium patients has been shown to be due to sodium retention. It is generally considered to be safe for use with pregnant women,[19] although there are several unconfirmed reports of teratogenicity.[21] There is considerable disagreement concerning the use of lithium in schizo-affective schizophrenia. Results probably depend to a large extent on diagnostic criteria used to differentiate between this entity and manic-depressive illness, and method of administration.[12,20]

Narrow Safety Margin

The big problem with lithium is the narrow margin between the therapeutic serum lithium concentration range, 0.50 to 1.5 (2.0 in the acute phase) meq/L, and the dangerously toxic range, over 2.5 meq/L.

The AMA's 1971 Drug Evaluation section on lithium states that "Occasional mild reactions . . . (with therapeutic serum lithium levels) are nausea, diarrhea, general discomfort, thirst, polyuria, fatigue and fine hand tremor," which usually do not persist throughout therapy.[1]

"Other early symptoms of intoxication," according to the above, are "drowsiness, vomiting and muscular weakness and incoordination. As toxicity and blood levels increase, these symptoms worsen and may result in blurring of vision, slurring of speech, dehydration and signs of organic brain syndrome." It continues: "These symptoms usually develop over a period of several days and may terminate in stupor, coma, and death."

It is most essential in view of these findings, that initiation of treatment be done only by those thoroughly familiar with the safe use of this medication, and with close understanding and surveillance of both the patient and his serum lithium levels.[10]

However, if lithium is 1) given only to accurately diagnosed manic depressives in the manic phase, 2) taken always exactly as directed and if there is 3) good communication between patient and physician so that use of the medication is understood and side effects and toxicity are recognized and dealt with early, and 4) serum lithium levels are monitored regularly, it can, according to our experience and that of others, be a very safe and trouble free as well as efficacious mode of treatment for a really crippling mental illness for which there has here-

tofore been no specific or very satisfactory therapy.

Meeting These Criteria

The problems presented in meeting these criteria are not identical among patient populations. One particular unique set of problems exists in meeting these four basic criteria in treating the geographically spread-out, heterogenous, low average socio-economic class patients of Maine Medical Center's community mental health center, Portland, Maine. The State of Maine covers 31,000 square miles, roughly. The State is divided under Regional Medical Planning into eight catchment areas, each with its own community mental health center. Catchment area populations range from about 200,000 in Cumberland County, the primary catchment area serviced by MMC's community mental health center, to 52,000 in the smallest (by population) catchment area in the State. The population includes a sizeable minority of French speaking and bilingual persons who originated in Canada.

The only laboratories in Maine with much experience doing serum lithium determinations are at the Bangor State Hospital, in the north, The Togus Veterans' Administration Hospital (which of course is not available to the general public), and MMC, near the southern end of the State. St. Mary's in Lewiston has just begun and Augusta State Hospital is getting ready to do serum lithiums.

The community mental health center at MMC makes its inpatient and laboratory services available to patients from other catchment areas for lithium therapy. Since the State's population is greatly concentrated in its southern half, this mental health career services a catchment area of roughly 800,000 persons for lithium treatment, in an area of more than 15,000 square miles.

Setting up systems to care for all acutely manic and hypomanic patients from this sprawling area has had a number of unique features, the first of which is case finding. Education of referral sources has aimed at 1) informing referral sources that lithium therapy with good controls and results is available at MMC for their manic or hypomanic patients, 2) that means are available to refer patients back to the referral sources for maintenance therapy, but continuing to use our laboratory for periodic serum lithium determinations, and 3) to remind them of and review for them the diagnostic criteria used to identify the manic-depressive in the manic state and differentiate him from the schizophrenic, with whose diagnostic category he is most often confused.[13]

Our education efforts have so far been confined to private psychiatrists in the State and to outlying Community Mental Health Centers. They have included a review of the literature on lithium therapy and a report on our experience with it which was presented by this writer at the spring, 1971, meeting of the Maine Psychiatric Association, and less formal personal contacts with directors and workers at other Community Mental Health Centers in the southern two-thirds of the State by various members of the MMC psychiatric staff. There have been no specific educational efforts on lithium therapy directed toward the general medical community so far.

All manic patients referred by outlying hospitals and community mental health centers, private psychiatrists or other practitioners, and those brought in by local or outlying police to the emergency ward of Maine Medical Center have been admitted to the 30-bed acute care psychiatric inpatient unit for thorough psychiatric and medical evaluation and for initiation of lithium therapy, if the diagnosis of manic depressive illness, manic phase, has been confirmed.

The diagnostic criteria used to identify appropriate candidates for lithium therapy generally follow those presented in *Noyes' Modern Clinical Psychiatry,* by Kolb.[13] Excerpts from his differential diagnosis of manic-depressive psychosis, manic phase, follow:

Kolb's Differential Diagnosis

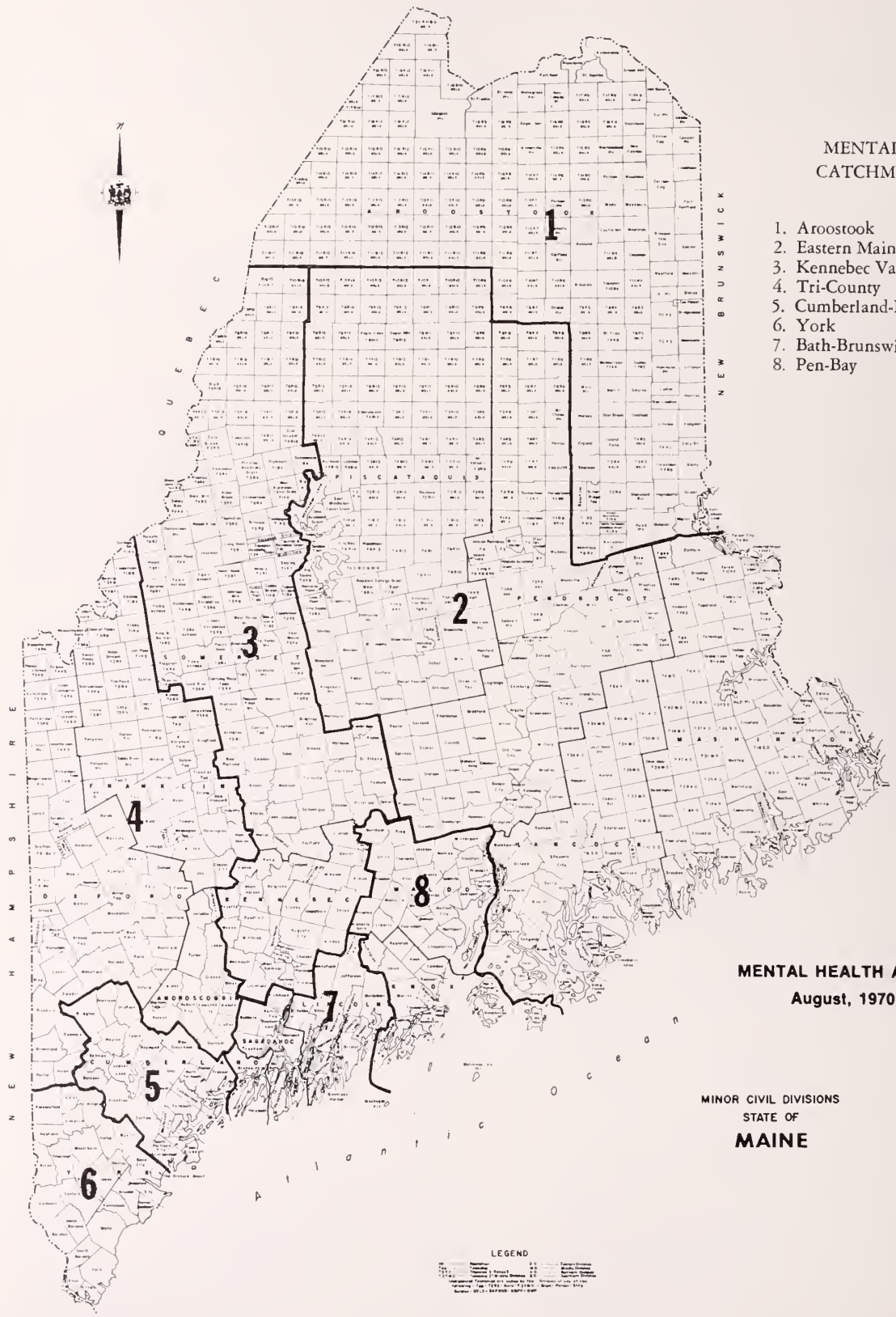
The most difficult problem in the differential diagnosis of manic-depressive psychosis is its distinction from schizophrenia. In general, the disturbance in personality in manic-depressive psychosis seems to be a quantitative one, rather than a lack of organization of personality as in schizophrenia. There is not complete agreement among psychiatrists as to how much temporary disorganization of the personality may be considered consistent with the diagnosis of manic-depressive psychosis or as to how much diagnostic weight should be assigned different symptoms. Behavior may be equally disturbed in the manic excitement of an affective psychosis and in the catatonic excitement of schizophrenia.

Important differentiating factors are the prepsychotic personality – whether more cyclothymic or schizoid characteristics have predominated, and whether energy has been directed into extroverted channels and marked by objectivity and realism, or whether it has been introverted and characterized by subjectivity.

In general, the interpersonal contact with the manic or depressive is more conventional and initially is perceived as a close one by the psychiatrist. With the schizophrenic, the interview is felt to be an uneasy one of distance, unfamiliarity and suspicion. The presence of flight of ideas and of psychomotor activity in the early phases of a mental disorder may not constitute unequivocal diagnostic criteria, since both may exist in reactions that eventuate as schizophrenia. In schizophrenia, there tends to be more incoherence and greater poverty of ideas. The excitement of the schizophrenic lacks the depth of emotional expression that is usually observed in the excitement of the manic-depressive, is less influenced by the reality of the environment, is more episodic and impulsive, tends to be undirected, stereotyped, confined to a limited space, determined more by hallucinations, delusions, and autistic processes. The more grotesque, and therefore the more primitive or highly symbolized the ideas, the more are they to be looked upon as schizophrenic.

The mood of the schizophrenic lacks both an infectious element and that component causing one to feel empathy with the patient, who, in general, is less accessible than the manic-depressive. The greater the harmony between mood, ideational content, and behavior, the more is a manic-depressive psychosis suggested, while the less the mental processes remain integrated, the more is schizophrenia denoted. Even though it may first be temporary, the greater the disorganization of the personality, as shown by absence or inappropriateness of affect, by hallucinations, soiling, and apparent noninterpretability of behavior, the more does one expect an ultimate, and for the most part permanent, schizophrenic disorganization. The clinical picture of some young patients initially considered to be suffering from a manic phase of a manic-depressive psychosis changes to one that is clearly schizophrenic in nature.

Many hypomanics in whom the emotional exaltation is replaced by anger, resentment, irritability, irascibility, litigious ten-



Mental Health Areas in Maine, shown above, vary widely in both area and population. Comprehensive Community Mental Health Centers are in various stages of development in each of these eight catchment areas, but so far few have the comprehensive psychiatric in- and out-patient facilities called for in Federal and State funding guidelines.

	Manic-Depressive Psychosis	Schizophrenia
Family History	Manic-depressive	Schizophrenic
Personality Disturbance	Quantitative irregularity	Qualitative irregularity Disorganized
Behavior	Very disturbed Psychomotor Hyperactivity	Very disturbed Psychomotor hyperactivity
Prepsychotic Personality	Cyclothymic predominantly. Energy directed into extroverted channels, objectivity and realism	Schizoid predominantly. Introverted, characterized by subjectivity
Interpersonal Contact With Psychiatrist	More conventional, close	Distance, unfamiliarity, suspicious
Stream of Thought	Flight of ideas more connected, organized, reality based; genuine emotional tone; hallucinations and delusions more readily relatable to reality	Flight of ideas, but more incoherence, poverty of ideas; lacks depth of emotional expression, less influenced by reality of environment, more episodic, impulsive, undirected, stereotyped, more concerned with hallucinations, delusions, autistic process
Affect	More infectious, induces empathy; harmony between mood, ideational content and behavior	Less infectious, little empathy induced; disharmony between mood, ideational content and behavior
When exaltation replaced by anger	May have paranoid delusions but not of solitary, asocial nature	May have paranoid delusions – more sustained, brooding, sensitive, suspicious

The differential diagnosis between manic-depressive psychosis and schizophrenia is generally considered to be one of the most difficult differentiations in psychiatry. Shown above is a comparative tabulation, extracted from *Noyes' Modern Clinical Psychiatry*, by Kolb.

dencies, and perhaps paranoid delusions were formerly diagnosed as having acute paranoia. Such hypomanics lack the solitary and asocial tendency usually exhibited by the true paranoid, who presents a more sustained, brooding, sensitive, suspicous reaction pattern. Persons in whom these impure affects replace an exaltation are ones who, prior to their psychosis, were characterized by a tendency to defensive projections.

Patient Cooperation

Efforts to assure, as far as possible, good patient cooperation at MMC have been very strongly emphasized. Before the first lithium tablet has been administered to any patient, the physician in charge of the case – one or the other of two first-year psychiatry residents in all cases in this study – has spent a minimum of forty-five minutes informing the patient generally on the potential benefits and dangers of lithium. This briefing has included a review of studies reported in the literature. It has also included discussions of the great importance of good doctor-patient communications, the necessity that dosage be based solely on serum levels without regard to patient mood, the importance of spacing dosage around the clock, and the necessity of a lapse of approximately 10 hours between the last dose and the drawing of blood for serum lithium determinations. Also discussed are such things as the importance of a rather steady food and fluid intake, the dangers of diuretics taken concurrently, etc.

At this point, the patient has been asked if he is interested in starting the treatment. Often the spouse or other close relative has participated with the patient in hearing and discussing the subject. The nature of the patient's psychiatric problem is discussed with varying degrees of frankness at this time. The circular published by the supplying pharmaceutical house has been read in its entirety to each patient at this time, and the patient and often the spouse or other close relative receive a copy. Questions and discussion have then been solicited from both patient and relatives. If there has not been fairly willing acceptance by patient and family, treatment with lithium has been deferred until such acceptance is voluntarily gained, or else lithium is not given and other treatment and/or disposition is made.

Later, the subject of lithium therapy has been gone over again at great length with the patient and often his family by the nurse-therapist assigned to the case. Any misunderstandings that surface at this time are either handled then by the nurse-therapist or referred back to the resident in charge of the case. Further discussion and review of this material is encouraged by the resident and the nurse-therapist.

This procedure has seemed to serve three functions: 1) insure that the patient is well informed on the benefits, dangers and procedures that need be followed, 2) insure that the patient is maximally involved in his own therapy and 3) achieve maximum placebo effect, for initial therapy especially.

Essential Precautions

Great caution must be observed in lithium treatment of patients whose history or physical examination show any indication of thyroid or renal malfunction or moderate or severe cardiovascular disorder. Initial laboratory work-up for all candidates for lithium therapy includes complete blood count, urinalysis and an automated twelve-test blood study, including BUN and fasting blood glucose, and EKG for patients over 40. Thyroid function tests have not been done routinely. Once the diagnosis has been confirmed, phenothiazines have been

Patient Number	Sex	Age	Date Begun	Maintenance Dose	Years of Education	Lithium Stopped?	Months on Lithium	Distance from MMC — Miles	Average Serum Lithium Concentrate	Initial Result (1 to 3)	Maintenance Result (1 to 3)	MD or SA or PS (1 to 4)	Positive Past History of Manic or Depressive Episodes (1 to 4)	Other Medicine Dose*
1	M	64	11/70	900 mg/day	13	no	5	20	0.52	3	2	1	3	+1
2	F	55	12/70	600	12	no	4	5	.65	2	2	3	3	0
3	M	21	10/70	900	15	no	7	15	.57	3	2	1	1	+2
4	M	57	9/70	900/1200	13	no	7	90	.52	3	3	2	4	0
5	F	48	7/70	1200	11	no	9	30	.60	3	2	1	1	+2
6	F	41	9/70	900	12	yes 1/71	4	5	.61	2	1	4	4	—3
7	F	39	9/70	900	14	no	10	35	.58	3	3	2	3	0
8	F	53	10/70	900	12	no	7	10	.58	3	2	2	3	+2
9	F	35	12/70	900/1200	12	yes 1/71	1	5	.57	3	1	4	2	—3
10	F	39	12/70	900	16	yes 2/71	2	5	.56	3	2	4	2	0
11	F	40	1/71	900	9	no	4	10	.69	3	2	3	4	+3 —2
12	M	27	9/70	900	14	no	8	5	.62	3	3	1	3	0
13	M	30	12/70	900	13	no	4	5	.48	3	3	2	3	0
14	M	46	9/70	900	18	no	8	20	.56	3	2	2	3	0
15	M	30	2/71	900	19	no	2	25	.60	3	2	2	3	—2
16	M	50	7/70	1200	16	no	9	35	.60	3	3	1	4	0

*Antidepressants
1 = 50mg
2 = 100mg
3 = over 100mg
+ = antidepressants
— = phenothiazines
0 = none

Between July 1970 and May 1971, sixteen patients were treated with lithium at Maine Medical Center. Shown above is a tabulation of our experience with these patients during that period of time.

used as necessary to control behavior. Once lithium treatment has been explained to the patient and accepted, dosage has been started on any of the several usual regimens and given concurrently with appropriate phenothiazine dosage.[1,10,16] Serum lithium determinations have been drawn every third day for three times. By that time the typical manic patient has been ready for discharge on maintenance dosage to return weekly for serum lithium determinations for one or two times, and then monthly thereafter. The same program has been followed with less typical manic patients, except that frequently their response has been somewhat less dramatic and their hospitalizations have been somewhat longer.

We began using lithium carbonate to treat mania in manic depressives in July 1970, when serum lithium determinations first became available to us at Maine Medical Center. In the next nine months we treated 16 patients, eight men and eight women. Their ages ranged from 21 to 64 years with a mean of 42.4 years. One woman, age 35, became psychotic with mania twice more and lithium was finally discontinued. Two women, ages 39 and 41, both with high titers of paranoid schizophrenia, dropped out of follow-up, and one man, age 30, moved to Florida where lithium was to be continued, and one woman moved to New Jersey where lithium was continued. The remaining 11 patients continue with regular maintenance dosage and monthly serum lithium determinations.

Results of Treatment

We have used 900 mg. of lithium daily as a loading dose on most of our manic patients with good results in from three to six days, as determined by serum levels and increasing appropriateness of affect. On about one-third, however, patients who were younger, bigger and more manic, we have used 1200 to 1800 mg. per day. Maintenance dosage in the 16 patients who began in this study is 1200 mg. per day for two patients, 900 one day and 1200 the next for two, 900 for 11 and 600 for one. Recommended maintenance serum lithium levels range from 0.5 to 1.5 meq/L, while those for our 16 patients average from 0.48 to 0.69 meq/L with the mean 0.58. This includes an occasional very low level resulting from a missed dose the night before and, less often, an exceptionally high level from accidental dosage the morning of the determination. Number of months on lithium for

our patients ranges from 1 to 9; the mean is 5.4.

If one accepts the concept of a continuum from the almost purely manic-depressive to the almost purely schizophrenic with a strong affective component, and puts all patients on a scale of 1 (pure manic depressive) to 4 (strong schizophrenic component), six of our 16 would be graded 1 on such a scale, five would be graded 2, two graded 3 and three graded 4, strongly schizophrenic (see table).

The past history of our 16 lithium patients ranged from one previous manic episode in two cases to several in two cases to many in eight cases to constant severe mania or depression in four cases.

In our 16-case series, initial response to lithium, in terms of appropriate affect and behavior and drastic reduction of phenothiazines, was excellent in 14 and good in two cases. Long term results were considered in terms of general level of function without severe mania or depression. Results in these terms are excellent in four cases, good in 12, all of whom are or have had brief episodes of mild to moderate depression treated with adjunctive antidepressants. Two patients were rehospitalized, one of whom had discontinued his lithium himself and again became manic and one of whom continued to take it but became psychotic with manic affect. Adverse reactions among these 16 patients have consisted of two cases of mild nausea and diarrhea during the first few days of therapy, and none have come to our attention from patients on maintenance dosage. Specifically, no thyroid problems have developed on patients while in this series. We speculate this may be because of the relatively low maintenance serum lithium levels we have used.

Other Medications

Of those eight patients in follow-up who require or have required adjunctive medication, three are getting phenothiazines, four antidepressants, and one fairly schizophrenic lady is getting both, in addition to her lithium.

The doses of antidepressants and phenothiazines given these patients, however, are markedly lower than those prescribed to other clinic patients. Of those getting adjunctive antidepressants (Elavil® or Tofranil®) one is on 50 mg./day, three are on 75 to 100 mg./day and one is on more than 100 mg./day. Of those on phenothiazines (Thorazine® or equivalent), two receive 100 mg./day and two are on more than 100 mg./day.

The follow-up for these patients consists only of five to ten minute visits monthly to check serum lithium levels and renew prescriptions in 10 cases and individual psychotherapy in one case. The other four cases have been lost to follow-up or lithium has been discontinued.

All these patients could undoubtedly have been controlled on phenothiazines. The big differences, as we see them, are that:

1. The large dosage of phenothiazine necessary to control most manic patients functions as a chemical straightjacket, leaving the patients essentially nonfunctional until the dosage can be reduced, which may be several months or more, and doesn't seem to get at the basic disease process at all. Lithium, however, seems to affect directly the manic disease process. This is in accordance with the findings of Gershon and others.[10]

2. Once their mania has subsided, many of our patients have histories of immediate severe depression or recurrent mania. Our lithium patients, however, as we see them month after month at medication clinic are functioning well at a level of 4 to 6, on a scale of 1 to 10, if 1 is psychotic depression and 10 is severe mania. Most of them say they are far more comfortable with themselves than they've ever been. This particularly includes three of our four patients who for many years have been either severely manic or severely depressed, with intervals of "normalcy" of no more than several weeks per year.

Follow-up Studies

We will need much longer follow-up studies to confirm or reject the benefits we believe the remaining patients are deriving from lithium maintenance therapy, but the results are to us most encouraging with the seven patients with histories of many previous serious manic or depressive episodes. Two of these are functioning very well with no supplementary medications and five have functioned only slightly less well with only small to medium doses of supplementary medications.

The monthly trip to MMC for serum lithium determinations was a great inconvenience to some patients from outlying areas who had to travel up to 150 miles each day. After we had gained a fairly broad experience with handling long-term lithium maintenance, we began to refer selected patients back to referring physicians or to those working in conjunction with outlying community mental health centers, who we thoroughly briefed on our experience with lithium maintenance in general and on our experience with the particular patient involved. Whole-blood samples have been mailed by these physicians monthly to the community mental health center at MMC, from which they have been hand delivered to the special research laboratory here that has done the determinations. The results are reported back to this mental health center, from which they are forwarded directly to the local physician.

In this way, continuity of care is assured with a minimum of error and misunderstanding. It also insures continuing statistical evaluation of the effectiveness of the maintenance program.

Summary

In our experience, which closely parallels that of most other workers in the field, lithium is now the key to therapy of manic depressives in the manic phase and to prophylaxis for these people once that phase has ended. With appropriate phenothiazines and other medications, lithium is also of considerable value in controlling acute episodes and in maintaining people whose manic illness is mixed with a high titer of schizophrenia.

Tricyclic antidepressants continue to play an important role in follow-up to control what have, so far in our ex-

perience with lithium maintenance, been mild depressions and problems with sleep.

We have also shown that although lithium is a potentially troublesome and even dangerous medication, it can be offered safely to a large, spread-out, largely low socio-economic-class, heterogenous population, through the cooperation of relatively less sophisticated (concerning lithium therapy) outlying local general physicians, psychiatrists and community mental health centers.

Several questions for which we shall try to develop answers in the future are:

1. Are the relatively low (but apparently quite effective) maintenance serum lithium levels we maintain in our patients responsible for the complete lack of thyroid problems in our patients secondary to lithium treatment? The literature on the physiochemistry of lithium and the thyroid strongly suggest this may be so.[14,16]

2. Is our very high level of patient cooperation more a result of our intensive patient education efforts or inate in the manic depressive disorder and the intellectual/educational level of our patients?

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ners of such a medical school have not consulted women physicians. The most progressive thing a new medical school could do is to actively recruit women physicians. They could be of real value in the planning of the new goals, in the planning of its curriculum and in the recruitment of women medical students. Such a combined effort of men and women would be truly new, would be progressive and would fulfill the new trend of woman's role at large and at the same time fulfill the recent previously mentioned requirement of the government of equal opportunity employment.

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Dental Manpower Survey – 1971

Alonzo H. Garcelon, D.D.S.*

The lack of Dental Manpower in the State of Maine is a critical factor in the delivery of dental care to the State's residents. Because "New England young people have the poorest teeth, and the highest rate of decay in the United States,"[1] the following survey was done to provide a precise look at the dental manpower force, the types of practices, distribution, ages, and population ratios they serve.

Efficient and effective dental manpower for the State is affected by a threefold problem. First, Maine lacks a sufficient number of dentists to meet the problem of supplying the current need for dental service. Second, the widespread demand for dental services causes heavy caseloads that book-up many general practitioners four to six months in advance. This results in less time for the practice of good preventive dentistry; difficulty in maintaining good recall systems; suspension of work that is necessary but not vital, (ex. bridgework); and little time for emergencies that occur more often, due to the unavailability of service. Third, location of many dentists in the larger towns and cities forces rural residents to travel long distances for care, often twenty miles or more.

Before reading further it is essential that one understand that three sets of figures are used in this article, and the reader should keep them clearly separated.

First are American Dental Association figures. These indicate the number of all living dentists associated with Maine, including the retired, the specialists, and those active in the profession but not in private practice, and many others not now residing in Maine.

Second are the figures used by the Maine State Board of Dental Examiners. These include all dentists registered with the Board during the year. Most practice actively in Maine; however, some are retired or live, and/or practice outside the State of Maine but maintain their Maine registration.

Third are the Department of Health and Welfare figures. These are dentists in Maine, listed in specific categories; namely, active full-time general practitioners, specialists (including those who limit their practices), part-time practitioners, ill practitioners, those registered but who have moved out of Maine, those registered but are full-time in hospital clinics. The age status of Maine dentists is also included in this paper.

A dental manpower survey carried out in 1958, by the New England Board of Higher Education for all the New England States,[2] showed Maine with a total of 338 active dentists.[3] This gave a dentist to population ratio of one to 2,680. To maintain this same ratio for 1971, Maine needs 364 active dentists, and to bring the dentist to population ratio to the 1971 national average of one dentist to 1,700 people, Maine needs a total of 575 active dentists.

The latest figures given by the ADA Bureau of Economic Research and Statistics,[4] states that Maine has four hundred and forty-one (441) "living Dentists" in the State, while the Maine Board of Dental Examiners show three hundred and seventy-four (374)[5] Registered Dentists in the State. These figures are both correct, by preceding definitions. They do not paint the picture that is of real value to the dentist looking for a place in which to settle and establish a practice, however. For example, Washington County has according to ADA count 15 "living" dentists. Maine State Board of Dental Examiners lists 7 "registered" dentists whereas the actual count is; 4 general practitioners, 2 with practices limited to prosthetics and one only part-time. Furthermore, the Board figure of 374 dentists does not give an accurate picture of the manpower situation because eighty-eight (88) of the Registered Dentists are not full-time general practitioners. Twenty-eight (28) are specialists which includes Orthodontists, Oral Surgeons, and Prosthodontists; twenty-two (22) are part-time dentists; twenty-five (25) are retired, but still maintain their registered status; three (3) have moved out of State; one (1) is ill and not able to practice; one (1) has not yet started his practice; and two (2) have died since the list of Registered Dentists was published in 1971. This drastically reduces the number of general practitioners, which serve the entire Maine population of 977,260,[6] to a total of two hundred and eighty-six (286).

One important factor involved in the future improvement of the present level and availability of service is the exceptionally high number of older men practicing dentistry in Maine. According to figures gathered in the Maine Dental Manpower Study, 1971, the average age of the two hundred and eighty-six full-time general practitioners, practicing in Maine is forty-eight (48) years. One hundred and ten (110) or 38.46% of the 286 G.P.'s are fifty years old or older (Table 4). This is one of the highest averages for dentists in the nation, and for a number of years this average has increased because not enough new, young dentists choose Maine as their State for practice.

The average age of the total registered dental population is fifty-two (52) (Table 3) years, compared with a median age of forty-eight (48). The median of 48 years gives a better demonstration of central tendency; however, the number of dentists in the higher age brackets must not be disregarded because of skewing, since they represent 44.38% of the registered dental popula-

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TABLE 1,-DISTRIBUTION, TYPE OF PRACTICE, AND POPULATION RATIOS OF MAINE REGISTERED DENTISTS BY COUNTY

COUNTY	ADA #LD	ME. #RD	#FT GPS	ADA P./LD	ME. P./RD	FT P./GP	ADA EST. P.	1970 P. PRE CT	OT	OS	PO	PR	PT	RT	D.	IL	FU	MV	HC
Androscoggin	37	35	25	2,432	2,575	3,605	90,000	90,127	2	2	0	0	4	1	0	0	0	1	0
Aroostook	26	19	16	3,931	4,870	5,783	102,200	92,533	1	0	0	0	1	0	1	0	0	0	0
Cumberland	127	104	77	1,516	1,826	2,467	192,500	190,007	5	5	0	1	5	9	0	0	0	1	2
Franklin	7	7	6	2,814	3,126	3,647	19,700	21,882	0	0	0	0	0	1	0	0	0	0	0
Hancock	23	16	13	1,378	2,090	2,572	31,700	33,443	0	0	0	0	1	1	1	0	0	0	0
Kennebec	45	41	28	2,049	2,327	3,408	92,200	95,425	2	2	0	0	2	5	0	0	0	0	2
Knox	15	13	9	1,747	2,152	3,109	26,200	27,983	0	0	0	0	2	2	0	0	0	0	0
Lincoln	9	10	7	2,078	1,982	2,832	18,700	19,823	0	0	0	0	2	1	0	0	0	0	0
Oxford	17	14	12	2,565	3,063	3,574	43,600	42,891	0	0	0	0	2	0	0	0	0	0	0
Penobscot	43	43	31	2,970	2,867	3,977	127,700	123,299	4	2	0	1	1	2	0	0	0	0	2
Piscataquis	8	7	6	2,050	2,333	2,722	16,400	16,331	0	0	0	0	0	1	0	0	0	0	0
Sagadahoc	8	9	6	2,800	2,560	3,839	22,400	23,037	1	0	0	0	0	0	0	0	0	1	0
Somerset	12	10	10	3,567	3,967	3,967	42,800	39,670	0	0	0	0	0	0	0	0	0	0	0
Waldo	5	4	3	4,360	5,718	7,624	21,800	22,874	0	0	0	0	0	0	0	0	1	0	0
Washington	15	7	4	1,987	4,158	7,276	29,800	29,106	0	0	0	0	2	1	0	0	0	0	0
York	44	35	33	2,391	3,109	3,297	105,200	108,829	0	0	0	0	0	1	0	1	0	0	0
TOTAL	441	374	286				982,900	977,260	15	11	0	2	22	25	2	1	1	3	6

*KEY

ADA - American Dental Association (Living Dentists)
#LD - Number of Living Dentists
#RD - Number of Registered Dentists
ME. - State of Maine
#FT - Number Working Full Time (40 Hours/ week)
GPS - General Practice
P. - Population
PRE CT - Preliminary Survey of the Population of Maine, 1970

OT - Orthodontists
OS - Oral Surgeons
PO - Periodontists
PR - Prosthodontists
PT - Part Time RD

D. - Deceased RD
IL - Ill RD
FU - Registered future Dentists
MV - RD Moved Out of Maine
HC - RD Full Time in Hospital Clinics

ADA	P./RD = 1 RD to 2228 people
ME.	P./RD = 1 RD to 2599 people
FT	P./RD = 1 RD to 3416 people

Table 2, STATEWIDE POPULATION RATIOS ACCORDING TO THE ADA, STATE OF MAINE, AND THE 1971 SURVEY

Table 3,
AGE AVERAGES OF REGISTERED DENTISTS IN THE STATE OF MAINE

COUNTY	RD	GP	OT	OS	PT	RT	PR
Androscoggin	49	48	49	54	54	73	0
Aroostook	49	49	46	0	68	0	0
Cumberland	49	46	42	47	71	71	58
Franklin	56	51	0	0	0	87	0
Hancock	51	48	0	0	61	79	0
Kennebec	53	49	49	56	71	73	0
Knox	55	48	0	0	77	63	0
Lincoln	50	42	0	0	67	66	0
Oxford	49	44	0	0	82	0	0
Penobscot	47	45	47	56	52	74	60
Piscataquis	53	49	0	0	0	79	0
Sagadahoc	44	45	43	0	0	0	0
Somerset	48	48	0	0	0	0	0
Waldo	43	49	0	0	0	0	0
Washington	54	46	0	0	60	74	0
York	51	55	0	0	0	59	0
Total Average	52	48	46	53	66	73	59

*KEY

ADA – American Dental Association
P. – Population
RD – Registered dentists in the State
ME – State of Maine
FT – Full time Registered dentists
GP – Total number of General Practitioners
OT – Total number of Orthodontists
OS – Total number of Oral Surgeons
PT – Total number of Part Time Practitioners
RT – Total number of Retired Practitioners
PR – Total number of Prosthodontists

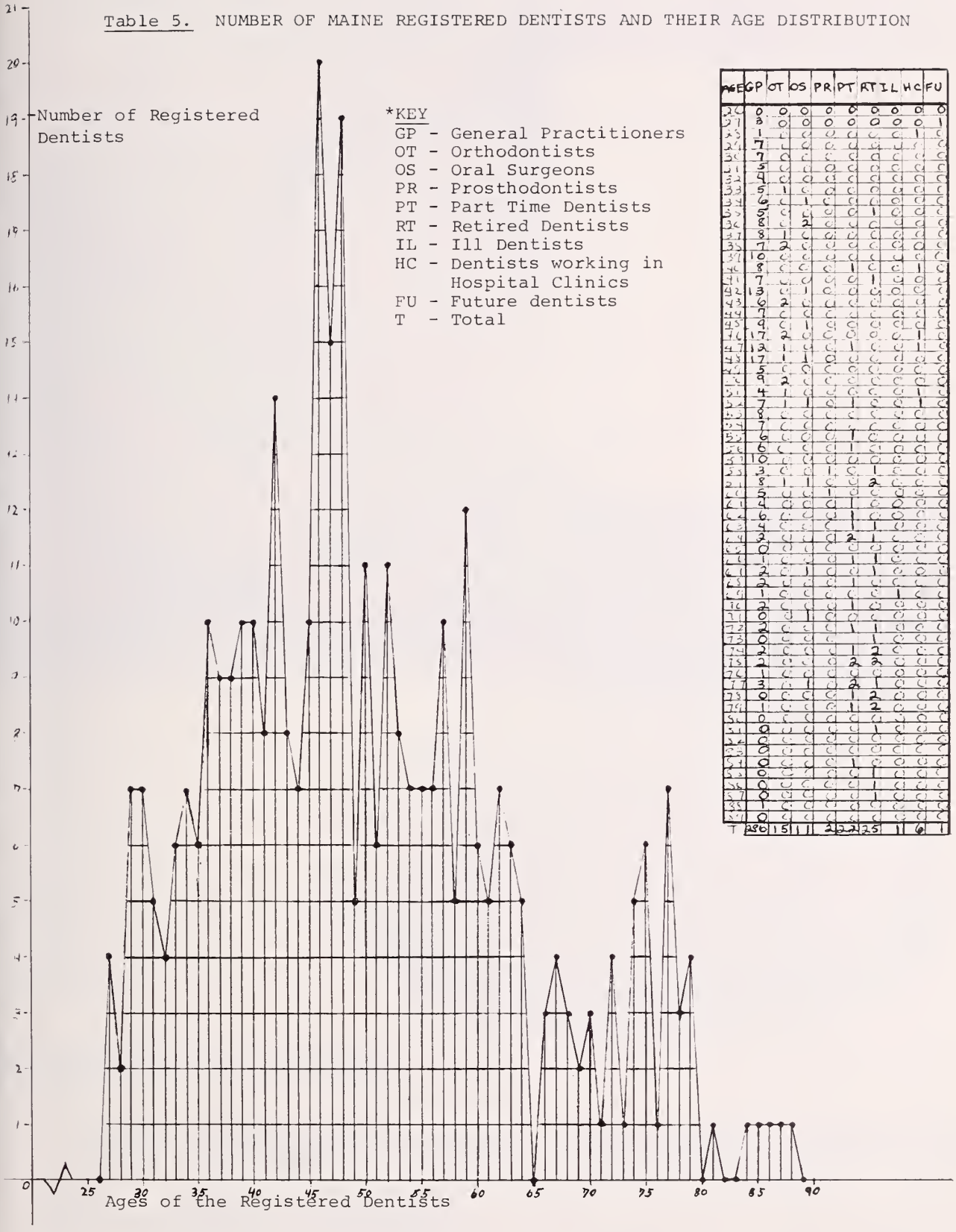
Table 4. NUMBER AND PERCENT OF REGISTERED MAINE DENTISTS FIFTY YEARS OLD AND OLDER, LISTED BY COUNTY

COUNTY	#FT GPS	#FT GPS ≥ 50	%/CTY ≥ 50	ME. #RD	#ME. RD ≥ 50	%/CTY ME. RD 50
Androscoggin	25	10	40.00	35	15	42.86
Aroostook	16	6	37.50	19	7	36.84
Cumberland	77	28	36.36	104	44	42.31
Franklin	6	4	66.66	7	5	71.43
Hancock	13	6	46.15	16	8	50.00
Kennebec	28	12	42.86	41	22	53.66
Knox	9	4	44.44	13	7	53.85
Lincoln	7	1	14.29	10	4	40.00
Oxford	12	2	16.66	14	4	28.57
Penobscot	31	9	29.03	43	16	37.21
Piscataquis	6	2	33.33	7	3	42.86
Sagadahoc	6	3	50.00	9	3	33.33
Somerset	10	4	40.00	10	4	40.00
Waldo	3	1	33.33	4	1	25.00
Washington	4	2	50.00	7	5	71.43
York	33	16	48.48	35	18	51.43
State Percent	286	110	38.46	374	166	44.38

*KEY
#FT - Number of full time practicing dentists
GPS - General Practitioners
≥ - Greater than or equal to
% - Percentage
CTY - County
50 - Fifty years of age
ME. - State of Maine
#RD - Number of Registered Dentists

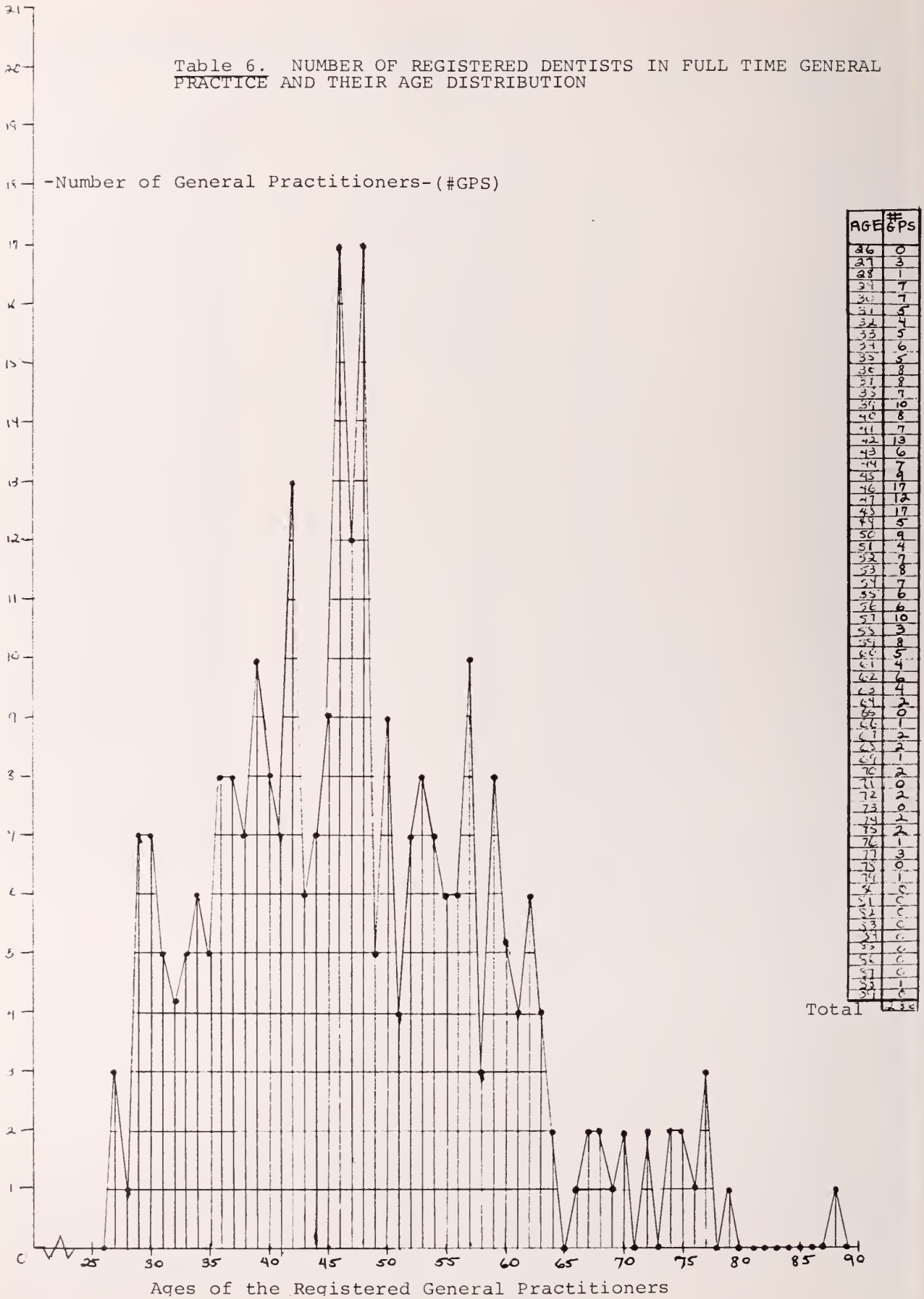
tion. The high age is even more significant when the American Dental Association (A.D.A.) figure, for State dental manpower, is reviewed, since the A.D.A. counts the total number of "living dentists," including non-registered, retired dentists. The fact that there are many non-registered, retired dentists living in the State, and that non-registered dentists cannot practice, shows that some figures on dental manpower can give an erroneous picture

Table 5. NUMBER OF MAINE REGISTERED DENTISTS AND THEIR AGE DISTRIBUTION



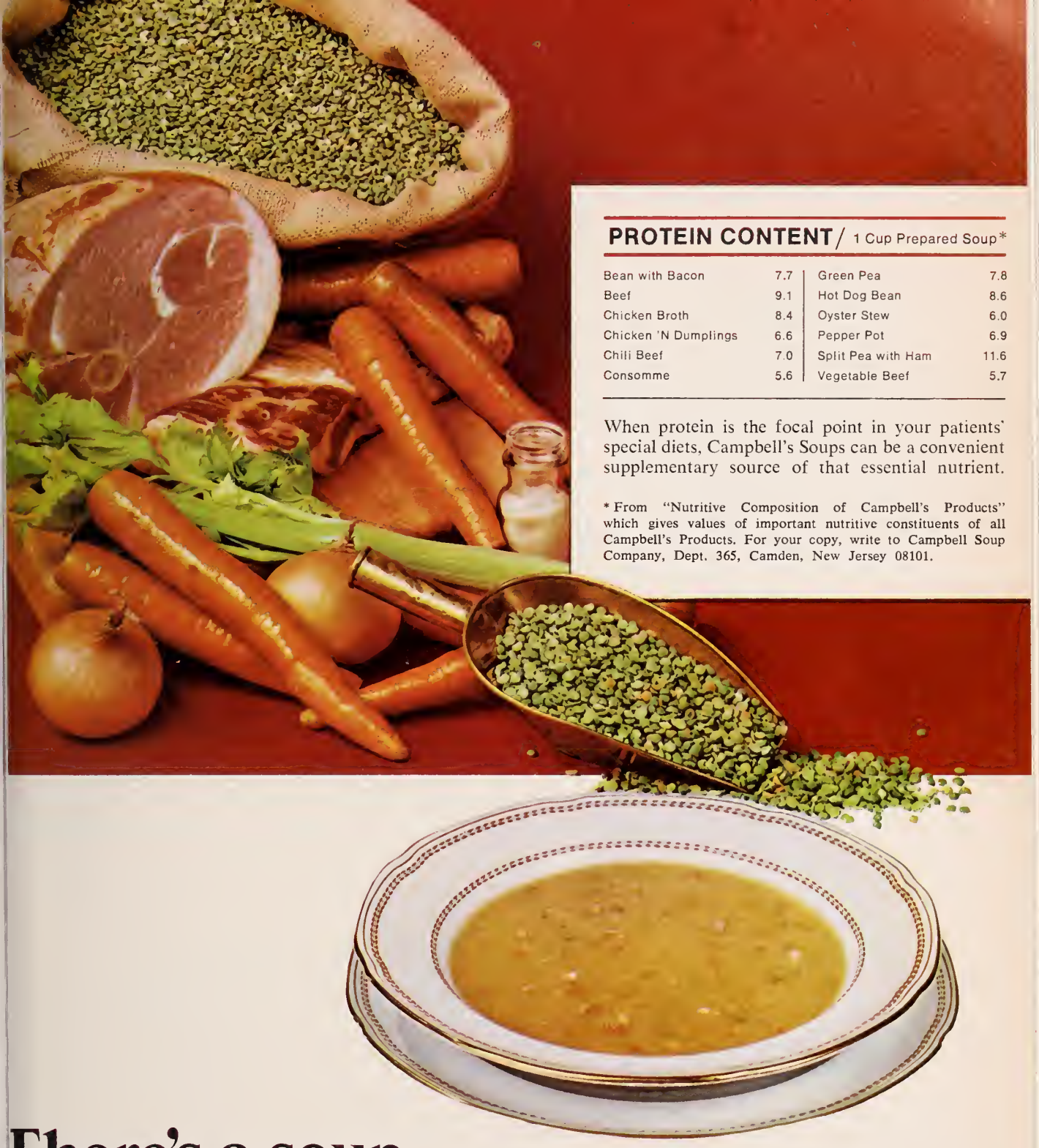
AGE	GP	OT	OS	PR	PT	RT	IL	HC	FU
26	0	0	0	0	0	0	0	0	0
27	3	0	0	0	0	0	0	0	1
28	1							1	
29	7								
30	7								
31	5								
32	4								
33	5	1							
34	6		1						
35	5		2			1			
36	8								
37	8	1							
38	7	2							
39	10					1		1	
40	8					1		1	
41	7			1		1			
42	13		1						
43	9	2							
44	6								
45	9		1					1	
46	17	2						1	
47	12	1				1		1	
48	17	1	1						
49	5								
50	9	2							
51	4							1	
52	7	1		1		1		1	
53	9								
54	7					1			
55	6					1			
56	6					1			
57	10								
58	3			1			1		
59	5	1		1		2			
60	5			1					
61	6					1			
62	4					1	1		
63	3				2		1		
64	0					1	1		
65	2			1		1			
66	2					1			
67	1						1		
68	0			1		1			
69	0					1	1		
70	2						2		
71	2						2		
72	1						2	1	
73	3						2		
74	0					1	2		
75	1					1	2		
76	0					1		1	
77	0					1	1		
78	0					1			
79	0					1			
80	0					1			
81	0								
82	0								
83	0								
84	0								
85	0								
86	0								
87	0								
88	0								
89	0								
90	0								
T	280	15	11	2	2	25	11	6	1

Table 6. NUMBER OF REGISTERED DENTISTS IN FULL TIME GENERAL PRACTICE AND THEIR AGE DISTRIBUTION



AGE	# GPs
26	0
27	3
28	1
29	7
30	7
31	5
32	4
33	5
34	6
35	5
36	8
37	8
38	7
39	10
40	8
41	7
42	13
43	6
44	7
45	9
46	17
47	12
48	17
49	5
50	9
51	4
52	7
53	8
54	7
55	6
56	6
57	10
58	3
59	8
60	5
61	4
62	6
63	4
64	2
65	0
66	1
67	2
68	2
69	1
70	2
71	0
72	2
73	0
74	2
75	2
76	1
77	3
78	0
79	1
80	0
81	0
82	0
83	0
84	0
85	0
86	0
87	0
88	1
89	0
Total	355

Continued on Page 119



PROTEIN CONTENT / 1 Cup Prepared Soup*

Bean with Bacon	7.7	Green Pea	7.8
Beef	9.1	Hot Dog Bean	8.6
Chicken Broth	8.4	Oyster Stew	6.0
Chicken 'N Dumplings	6.6	Pepper Pot	6.9
Chili Beef	7.0	Split Pea with Ham	11.6
Consomme	5.6	Vegetable Beef	5.7

When protein is the focal point in your patients' special diets, Campbell's Soups can be a convenient supplementary source of that essential nutrient.

* From "Nutritive Composition of Campbell's Products" which gives values of important nutritive constituents of all Campbell's Products. For your copy, write to Campbell Soup Company, Dept. 365, Camden, New Jersey 08101.

There's a soup for almost every patient and diet ..for every meal and, it's made by Campbell

the 3 phases of Eve



All women are not equal in their endogenous hormonal output. And, while all oral contraceptives are fundamentally effective, they exhibit **differences in their activity levels and estrogen-progestogen ratios that affect different women differently**—in both short and long-term use. Some brands may be insufficient for the woman's needs or else may exceed them.

Searle offers a family of O.C. products that covers the range of women's needs to help you provide the right pill for the right woman at the right time.

References **1.** Editorial. Oral Contraceptives. Which Pill for Which Patient? Patient Care 3:90-115 (Feb.) 1969 and 4:135-145 (June 15) 1970. **2.** Greenblatt, R. B. Progestational Agents in Clinical Practice. Med. Sci. 18:37-49 (May) 1967. **3.** Kistner, R. W. Gynecology: Principles and Practice, ed. 2. Chicago, Year Book Medical Publishers, 1971. **4.** Kistner, R. W. The Pill: Facts and Fallacies About Today's Oral Contraceptives. New York, Delacorte Press, 1968. **5.** Nelson, J. H. Clinical Evaluation of Side Effects of Current Oral Contraceptives. J. Reprod. Med. 6:50-55 (Feb.) 1971. **6.** Orr, G. W. Oral Progestational Agents: Therapy and Complications. S. Dakota J. Med. 22:11-17 (Jan.) 1969.

the Ovulen phase

Most women* with a **balanced hormone profile and normal menses** do best on a middle-of-the-road pill that is neither estrogen dominant nor strongly progestogen dominant.

(*Typical clues—normal body build and breasts, feminine appearance, healthy skin and hair. Vaginal cytology slide—balanced "pink and blue.")

Some women having problems on other O.C.s might do well on Ovulen.

Ovulen has a distinctive hormonal balance that combines moderate estrogenic activity with a slight progestogen dominance. It has an excellent record of patient acceptance.

Ovulen®

Each white tablet contains: ethynodiol diacetate 1 mg./mestranol 0.1 mg.

SEARLE

For brief summary of prescribing information, see following page.



the Demulen phase

Many women* who secrete **more estrogen** than most do well on a pill with lower estrogen activity and an increased progestogen overbalance.

(*Typical clues—shorter, plumper, full-breasted, with glowing skin and no wrinkles. Vaginal cytology slide "pink.")

Some women with special conditions that may be aggravated by higher estrogen-activity products may do better on this ratio.

Demulen combines minimal estrogenic activity with a moderate ratio of progestogen overbalance. It is particularly well suited to the young when low-dose (activity) is preferred. Demulen offers little risk of the most potent progestogen side effects; early breakthrough bleeding is often transient.

Demulen®

Each white tablet contains: ethynodiol diacetate 1 mg, ethinyl estradiol 50 mcg
Each pink tablet in Ovulen-28® and Demulen®-28 is a placebo, containing no active ingredients.
Both Ovulen and Demulen are available in 21- and 28-pill schedules

the Enovid-E phase

Some women* who secrete **less estrogen** than most do best on a pill with a moderate estrogen overbalance.

(*Typical clues—oily complexion, acne, hirsutism, masculinity, flat chest. Vaginal cytology slide—"blue.")

Patients with estrogen deficiency may show:

premenopausal syndrome
early-cycle bleeding
scanty menses
intermittent depression
increased appetite
steady weight gain
vaginal candidiasis

Enovid-E not only provides increased estrogenic activity with low progestogen activity, but also contains the only progestogen that is not antiestrogenic. Therefore it offers less risk of high-dose progestogen side effects.

Enovid-E®

Each tablet contains: norethynodrel 2.5 mg, mestranol 0.1 mg

Oral contraceptives are complex medications and, after reference to the prescribing information, should be prescribed with discriminating care.

for the 3 phases of Eve:

a family of O.C. products

Ovulen®

Each white tablet contains:
ethynodiol diacetate 1 mg./mestranol 0.1 mg.

Demulen®

Each white tablet contains:
ethynodiol diacetate 1 mg./ethinyl estradiol 50 mcg.

Each pink tablet in Ovulen-28® and Demulen®-28 is a placebo, containing no active ingredients.

Actions—Ovulen and Demulen act to prevent ovulation by inhibiting the output of gonadotropins from the pituitary gland. Ovulen and Demulen depress the output of both the follicle-stimulating hormone (FSH) and the luteinizing hormone (LH).

Special note—Oral contraceptives have been marketed in the United States since 1960. Reported pregnancy rates vary from product to product. The effectiveness of the sequential products appears to be somewhat lower than that of the combination products. Both types provide almost completely effective contraception.

An increased risk of thromboembolic disease associated with the use of hormonal contraceptives has now been shown in studies conducted in both Great Britain and the United States. Other risks, such as those of elevated blood pressure, liver disease and reduced tolerance to carbohydrates, have not been quantitated with precision.

Long-term administration of both natural and synthetic estrogens in subprimate animal species in multiples of the human dose increases the frequency of some animal carcinomas. These data cannot be transposed directly to man. The possible carcinogenicity due to the estrogens can be neither affirmed nor refuted at this time. Close clinical surveillance of all women taking oral contraceptives must be continued.

Indication—Ovulen and Demulen are indicated for oral contraception.

Contraindications—Patients with thrombophlebitis, thromboembolic disorders, cerebral apoplexy or a past history of these conditions, markedly impaired liver function, known or suspected carcinoma of the breast, known or suspected estrogen-dependent neoplasia and undiagnosed abnormal genital bleeding.

Warnings—The physician should be alert to the earliest manifestations of thrombotic disorders (thrombophlebitis, cerebrovascular disorders, pulmonary embolism and retinal thrombosis). Should any of these occur or be suspected the drug should be discontinued immediately.

Retrospective studies of morbidity and mortality conducted in Great Britain and studies of morbidity in the United States have shown a statistically significant association between thrombophlebitis, pulmonary embolism, and cerebral thrombosis and embolism and the use of oral contraceptives. There have been three principal studies in Britain[1-3] leading to this conclusion, and one[4] in this country. The estimate of the relative risk of thromboembolism in the study by Vessey and Doll[3] was about sevenfold, while Sartwell and associates[4] in the United States found a relative risk of 4.4, meaning that the users are several times as likely to undergo thromboembolic disease without evident cause as nonusers. The American study also indicated that the risk did not persist after discontinuation of administration and that it was not enhanced by long-continued administration. The American study was not designed to evaluate a difference between products. However, the study suggested that there might be an increased risk of thromboembolic disease in users of sequential products. This risk cannot be quantitated, and further studies to confirm this finding are desirable.

Discontinue medication pending examination if there is sudden partial or complete loss of vision, or if there is a sudden onset of proptosis, diplopia or migraine. If examination reveals papilledema or retinal vascular lesions medication should be withdrawn.

Since the safety of Ovulen and Demulen in pregnancy has not been demonstrated, it is recommended that for any patient who has missed two consecutive periods pregnancy should be ruled out before continuing the contraceptive regimen. If the patient has not adhered to the prescribed schedule the possibility of pregnancy should be considered at the time of the first missed period.

A small fraction of the hormonal agents in oral contraceptives has been identified in the milk of mothers receiving these drugs. The long-range effect to the nursing infant cannot be determined at this time.

Precautions—The pretreatment and periodic physical examinations should include special reference to the breasts and pelvic organs, including a Papanicolaou smear since estrogens have been known to produce tumors, some of them malignant, in five species of subprimate animals. Endocrine and possibly liver function tests may be affected by treatment with Ovulen or Demulen. Therefore, if such tests are abnormal in a patient taking Ovulen or Demulen, it is recommended that they be repeated after the drug has been withdrawn for two months. Under the influence of progestogen-estrogen preparations preexisting uterine fibromyomas may increase in size. Because these agents may cause some degree of fluid retention, conditions which might be influenced by this factor, such as epilepsy, migraine, asthma, cardiac or renal dysfunction, require careful observation. In breakthrough bleeding, and in all cases of irregular bleeding per vaginam, nonfunctional causes should be borne in mind. In undiagnosed bleeding per vaginam adequate diagnostic measures are indicated. Patients with a history of psychic depression should be carefully observed and the drug discontinued if the depression recurs to a serious degree. Any possible influence of prolonged Ovulen or Demulen therapy on pituitary, ovarian, adrenal, hepatic or uterine function awaits further study. A decrease in glucose tolerance has been observed in a significant percentage of patients on oral contraceptives. The mechanism of this decrease is obscure. For this reason, diabetic patients should be carefully observed while receiving Ovulen or Demulen therapy. The age of the patient constitutes no absolute limiting factor, although treatment with Ovulen or Demulen may mask the onset of the climacteric. The pathologist should be advised of Ovulen or Demulen therapy when relevant specimens are submitted. Susceptible women may experience an increase in blood pressure following administration of contraceptive steroids.

Adverse reactions observed in patients receiving oral contraceptives—A statistically significant association has been demonstrated between use of oral contraceptives and the following serious adverse reactions: thrombophlebitis, pulmonary embolism and cerebral thrombosis.

Although available evidence is suggestive of an association, such a relationship has been neither confirmed nor refuted for the following serious adverse reactions: neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis.

The following adverse reactions are known to occur in patients receiving oral contraceptives: nausea, vomiting, gastrointestinal symptoms (such as abdominal cramps and bloating), breakthrough bleeding, spotting, change in menstrual flow, amenorrhea during and after treatment, edema, chloasma or melasma, breast changes (tenderness, enlargement and secretion), change in weight (increase or decrease), changes in cervical erosion and cervical secretions, suppression of lactation when given immediately post partum, cholestatic jaundice, migraine, rash (allergic), rise in blood pressure in susceptible individuals and mental depression.

Although the following adverse reactions have been reported in users of oral contraceptives, an association has been neither confirmed nor refuted: anovulation post treatment, premenstrual-like syndrome, changes in libido, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, fatigue, backache, hirsutism, loss of scalp hair, erythema multiforme, erythema nodosum, hemorrhagic eruption and itching.

The following laboratory results may be altered by the use of oral contraceptives: hepatic function: increased sulfobromophthalein retention and other tests; coagulation tests: increase in prothrombin, Factors VII, VIII, IX and X; thyroid function: increase in PBI and butanol extractable protein bound iodine, and decrease in T^3 uptake values; metyrapone test and pregnanediol determination.

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SEARLE Products of SEARLE & CO.
San Juan, Puerto Rico 00936

Enovid-E®

norethynodrel 2.5 mg./mestranol 0.1 mg.

Actions—Enovid-E acts to prevent ovulation by inhibiting the output of gonadotropins from the pituitary gland. Enovid-E depresses the output of both the follicle-stimulating hormone (FSH) and the luteinizing hormone (LH).

Indication—Enovid-E is indicated for oral contraception.

The *Special Note, Contraindications, Warnings, Precautions* and *Adverse Reactions* listed above for Ovulen and Demulen are applicable to Enovid-E and should be observed when prescribing Enovid-E.

SEARLE **Enovid-E®**

brand of norethynodrel with mestranol

Product of G. D. Searle & Co.
P.O. Box 5110, Chicago, Illinois 60680
Where "The Pill" Began

when one is considering the available dental working force, and fail to demonstrate the disastrous situation which Maine faces with its lack of dental personnel.

Another severe problem in the dental area is the distribution of dental personnel. The United States Public Health Service, Administrators of the Health Professions Act of 1963,[7] indicates that any area with a dentist-population ratio of 1 to 3,000 has an emergency shortage of dentists. The 1970 national average is approximately 1 dentist to every 1,700 people. In Maine, the average is one Registered Dentist to every 2,599 people and 1 general practicing dentist to every 3,416 people (Table 1).

According to the data of the 1971 Dental Manpower Survey, Cumberland County is the only county in Maine very close to the national average, with a ratio of one Registered Dentist to every 1,826. The important factor is that our largest population center, Portland city, is part of this county. Less than 6.58% of the State's population is located in Portland, but 19% of Maine's dentists practice there. This means 70 of the 374 registered dentists in the State are located in one city, serving 64,304 people out of the State population of 977,260.

According to A.D.A. figures (see Table 1), the county with the highest population to dentist ratio in Maine is Waldo County, with 4,360 people to one dentist followed by Aroostook with 3,931 to 1 and Somerset with 3,567 to 1. The rest of the counties in the State are given ratios below three thousand, with four counties with ratios below two thousand, including Washington County, with a ratio of 1,987 people to one dentist.

These figures released by the A.D.A. present a more optimistic view of the dental situation and do not agree with the figures derived by the Department of Health and Welfare. The Department finds the situation more severe with a steady increase in the population to dentist ratios over the years. Our figures (See Table 1) show Lincoln County with 10 registered dentists and a population of 18,700 for a ratio of 1,982 to 1. Hancock has a ratio of 2,090 to 1; Knox, 2,152 to 1; Kennebec, 2,327 to 1; Piscataquis, 2,333 to 1; Sagadahoc, 2,560 to 1; Androscoggin, 2,575 to 1; Penobscot, 2,867 to 1; Oxford, 3,063 to 1; York, 3,109 to 1; Franklin, 3,126 to 1; Somerset, 3,967 to 1; Washington, 4,158 to 1; Aroostook, 4,870 to 1; and Waldo County with 4 dentists and a population of 21,800 for a ratio of 5,718 people to one registered dentist.

Even more shocking figures are found when one compares the ratio of general practitioners to population since only four counties have ratios below 3,000 to 1. Cumberland, 2,467; Hancock, 2,572; Piscataquis, 2,722; and Lincoln, 2,832. All the other counties in the State have ratios of three thousand or higher with Washington and Waldo with ratios of 7,276 and 7,624 respectively. These high ratios result on occasion in case-loads that are impossible for the general practitioners to handle, effectively. They also add more problems to the Federally funded programs, such as Head Start, since the children receiving care add more of a strain to the already overworked dentists. If the trends continue in this direction, the dentists may be forced into a situation of accepting only a certain number of patients, so the quality and standards of work will not be lowered.

From the information presented in this Report, the following recommendations are made for the State of Maine, as possible guides to increase the dental manpower, for better distribution of dentists and hopeful improvement of the State's dentists to population ratios:

1. Continued recruiting of general practitioners and specialists from out of the State, to accommodate the increasing demand for the dental services.
2. Continued support of the Maine-Tufts Compact and possible expansion, if the number of qualified applicants is high.
3. Guidance and advice for incoming dentists, by the Department of Health and Welfare, to show areas of dental need, and to improve the distribution of dentists.
4. Establishment of dental services supported by towns to improve the dental care in their areas. Not for those able to pay, but for the poor or dentally indigent and then only if the general practitioners cannot take care of the problem.
5. The establishing of guaranteed incomes for selected new dental graduates in areas where great dental service needs exist. Grant monies should be used to underwrite the costs of dental offices for new graduates.

One of the objects of this paper is to point out the need for statistics gathered on a relatively local level. A dentist looking for a practice location is better served with information of this type. Figures of this type present a more accurate picture of the needs in particular localities, very important in the various considerations when selecting a practice site location.

The need to maintain the current figures in such an effort is essential, for changes can occur almost month by month.

ACKNOWLEDGMENT

I wish to acknowledge the assistance of Cathy Prince and Alexander Turbyne in preparing this manuscript.

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From the Secretary's Notebook

Summary of Proceedings, Interim Meeting, M.M.A. House of Delegates, April 9, 1972 at Waterville, Maine

The Interim Meeting of the M.M.A. House of Delegates was held at Thayer Hospital in Waterville, Maine on Sunday, April 9, 1972 with an attendance of 47 delegates and alternates and four guests. Linus J. Stitham, M.D., President of the M.M.A., called the meeting to order, and George W. Bostwick, M.D., Speaker of the House, presided.

1. **The Financial Statement of Income and Expenditures for 1971 and Budget Proposed for 1973** was presented by Dr. Robert F. Ficker, Chairman of the Budget Committee. Final action on the proposed budget will take place at the annual meeting of the House of Delegates on June 11, 1972 at The Colony, Kennebunkport, Maine.

2. The preliminary written **report of the Committee on Nominations** was presented. The report consisted of nominees for vacancies on the standing committees, and 2 nominees for the office of President-elect and for each position to be filled on the Executive Committee (this year, Cumberland, Kennebec and Aroostook counties). **A brief biographical sketch of each nominee** was sent to members of the House of Delegates.

Final vote on the report of the Committee on Nominations will take place at the second session of the House of Delegates in June.

3. **On-site visits to medical schools** – Dr. Richard T. Chamberlin gave an excellent report and a final, more "polished" report will appear in an upcoming issue of The Journal of the M.M.A.

4. Several **resolutions** were presented and each is to be re-written in correct form for action in June:

Androscoggin County

a) Re Proposed Medical School for Maine – It is recommended that the most prudent course should be followed and the medical school study broadened to include cost estimates and recommendations for a conventional medical school, as well as a medical school without walls.

b) Re Utilization/Review for Private Insurance Industry – It is recommended that utilization/review practice not be provided by private practitioners of Medicine to the private insurance industry as is required under law for recipients of public funds, i.e., Title XIX, Old Age Assistance and Medicare (Federal Social Security).

c) Re Utilization/Review and Peer Review Practices in Federal Medical Facilities, specifically Veterans Administration Hospitals – It is recommended that the M.M.A. investigate whether or not utilization review is on a par with private hospitals.

Hancock County

It recommends that the role of the physician should be that of aiding each patient to obtain information and medical assistance to choose when to conceive or complete a pregnancy.

Somerset County

It recommends that the Executive Committee of the M.M.A. seek out and advise as to direction any planned monies received from groups, foundations, corporations, or the Federal Government, to be spent in any Medical Program or for the advancement of any Medical Program in Maine.

5. **Committee Reports:**

a) Diabetes – Melvin Bacon, M.D., Chairman (copy given to each delegate).

b) Recruitment, Aid & Placement – Robert McAfee, M.D., Chairman – Dr. McAfee reported on the current financial status of the Maine Medical Education Foundation. He pointed out that fewer and fewer physicians are paying the voluntary "assessment" and suggested that it should be changed to a mandatory "assessment." Dr. Monaghan suggested that the dues be raised $25 for this purpose. **Dr. Stitham made a motion that the dues be increased from $100 to $125 a year; this additional $25 to be earmarked for the Maine Medical Education Foundation. In the event this is approved, the present voluntary assessment will be abolished. This motion was carried, and will be presented in June for final vote.**

c) Committee on Care of the Disadvantaged – David C. Dixon, M.D., Chairman (copy sent to each delegate).

6. **Physicians' Fees** – Paul A. Fichtner, M.D. remarked on the disparity of fees charged around the State and said that particularly in view of Federal guidelines, it behooves us as an Association to do some investigation along these lines — suggesting that perhaps a committee be appointed to do this. He asked that anyone with any suggestions to bring them in at the June meeting.

7. Other business –

a) Dr. Douglas Hill spoke as Secretary of the Cumberland County Medical Society and told the House that his Society is concerned with the present **malpractice insurance situation,** but because they couldn't agree, they didn't bring in a resolution. They are especially worried because it appears the insurance carriers can cancel anyone at any time.

Most of the physicians are insured either by Hartford or Aetna, Dr. Hanley said. Last year, Hartford told Dr. Hanley that the gentlemen's agreement was no longer in effect and that each policy would be written on an individual basis. They are now classifying each physician in one of three categories: Renewable (automatic); Questionable (Hartford will check with M.M.A. office for further information); and Nonrenewable (Hartford has agreed to notify the M.M.A. and the individual well in advance of cancellation). They do not intend to cancel any malpractice policy "without cause." Dr. Hanley feels we have a fairly good understanding with Hartford and he would caution the members from jumping at a "simple solution" because there is none. St. Paul's Insurance Company is also interested in writing group malpractice insurance.

b) Dr. Hill brought up another item – the Cumberland County Medical Society is interested in resolving the problems between **Osteopaths and M.D.'s** and they have met with the D.O.'s. They have agreed to meet again and plan to discuss a joint board of examiners. Dr. Bostwick mentioned that his committee has been through the same thing with the same group for years. Dr. Stitham, who is Chairman of the Board of Registration of Medicine, said that the Osteopaths want equal representation on a joint board – even though there are only 200+ D.O.'s in the State compared to over 1,100 M.D.'s. He said we can't talk on that basis.

Also suggested was that the M.M.A. have some membership requirements, and Dr. Chamberlin, Chairman of the M.M.A. Committee on Continuing Education, said that his committee is planning to discuss this.

c) Dr. Hanley informed the delegates that the **M.M.A. group BCBS contract** for its members and their secretaries is going up on the rates by about 20%, effective May 1, 1972. This increase is because the group is paying out more than it is taking in . . . which has been the case for many years. He told them the Executive Committee has instructed him to sign the contract, but to investigate the possibility of having a contract with a deductible for broader coverage at a smaller premium. Dr. Hanley read a sampling of Blue Cross payments made to our subscribers in the last year — a majority were less than $250 which shows we are paying a great deal for administrative work. The delegates were urged to take this information back to the county societies.

d) Asked if physicians are required to post a **notice re fees,** Dr. Hanley replied that it was a legal requirement that they post a notice saying the list of fees is available.

e) It was announced by Dr. Stitham that he has been assured by Dr. William E. Schumacher, in writing, that no patient will be refused **admission to a State Hospital,** without first being seen by an M.D. A copy of this letter was published in the April issue of The Journal of the M.M.A.

f) Dr. Stitham read a letter that was sent out by Aetna Insurance Company in Louisiana, informing the public that they have compiled a **listing of prevailing fees** in the State for various medical procedures. Anyone anticipating medical treatment or surgery may call Aetna and be advised of the prevailing fee in their area.

g) Dr. Bostwick announced that the 105th Maine legislature has passed a bill relating to **reporting tumors and establishing a State-wide Tumor Registry.**

h) Each delegate was given a copy of Dr. Chamberlin's report of a **Level of Care Conference** held in Boston on 2/25/72 and advised to read it at their leisure.

PATRICIA A. BERGERON
Secretary-Treasurer, M.M.A.

A CASE OF FALSE DEMENTING DISEASE OF THE BRAIN: A CURABLE DISEASE

Continued from Page 105

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321 Brackett Street, Portland, Maine

Toward Better Understanding

The following two articles, both adapted from the Jacksonville Blue Cross Plan, are well worth reprinting for use in answering any criticisms directed at either Blue Cross and Blue Shield advertising or at physicians' fees.

Successful businesses recognize that they must advertise if they are to stay healthy and grow. A business that depends on current customers alone just won't be around very long. As those customers move away, die, or transfer their patronage elsewhere, the business suffers accordingly. The same is true of Blue Cross and Blue Shield and its members, "non-profit" notwithstanding.

The businessmen of the community and other representatives on Blue Cross and Blue Shield's Board of Directors recognize that fact in their approval of Blue Cross and Blue Shield advertising programs and budgets.

Rather than increasing membership fees, Blue Cross and Blue Shield advertising serves just the opposite purpose — it helps keep fees as low as possible. One important way advertising does this is to encourage a steady enrollment of new, young members. This influx of new members helps keep the average age of the total membership as low as possible. This, in turn, helps hold down the size of the average hospital bill, since the size and frequency of health care bills generally increase as members grow older. The end results of a lower average age is a lower average membership fee.

At the same time, the increased membership encouraged by advertising permits fixed operating costs to be spread over the largest number of members, keeping their proportionate share of those expenses as small as possible.

Advertising also represents the cheapest means available to Maine Blue Cross and Blue Shield for reaching the nearly 432,000 members it has enrolled. The mass audience delivered by advertising at relatively low cost-per-thousand people reached enables Blue Cross and Blue Shield to do these things in the individual member's behalf:

1. Advertising notifies him of critical points in the life of his membership when some action is required of him, such as transferring children to their own contracts when they're no longer covered in the parent's contract, or requesting transfer to lower cost membership at age 65 to supplement Medicare coverage;
2. Advertising educates the member about his benefits, both those he has and any improved benefits for which he may be eligible;
3. Advertising informs the member about the current cost of his health care needs so that he doesn't cancel his membership for less-than-adequate coverage elsewhere, or go without any protection at all.

Doctors' Expenses 35%-45% of Income

Whenever the subject of health care comes up in conversation, the word cost is always prevalent. Usually it's used in describing the increased cost *to the public*. Frequently neglected or not mentioned is the increased cost to the provider of this medical care, the physician.

When the public or news media says that a certain doctor received so much in payment, most persons assume that the figure represents the physician's actual income. On the contrary, the physician must pay out 35%-45% of his gross income for operating expenses, depending upon his specialty and other factors. As these expenses increase, the doctor's charges must also increase.

Naturally, the cost of establishing and maintaining a medical practice differs with the size of the practice and the area in which the physician is operating. A doctor in a small farm town would have fewer expenses and lesser costs than a physician in a large metropolitan area. There are several factors, however, that are common to the increasing costs of most physicians.

The most important is the general inflation of the economy. It is obvious that the doctor is just as affected by the rising prices of food, clothing, shelter and luxuries as the average citizen. Unlike the average wage earner, though, the physician must also purchase the services of clerical and medical personnel.

Salaries are the physician's primary expense. With the public demands for quality health care increasing, physicians must hire additional nurses and medical assistants. More paperwork means more secretarial and clerical employees. In future years, with added emphasis on delegation of responsibilities and the training of paramedical personnel to handle minor procedures, the doctor may find it necessary to further increase his staff.

According to the October 12, 1970, issue of MEDICAL ECONOMICS magazine, the cost of office rental space has gone up 20% in the past three years. This is the second largest practice expense for most physicians, making up nearly 6% of the average in-

Continued on Page 125

140/90 is normal blood pressure... or is it?

An extensive study based on nearly 4 million life insurance policies suggests that a blood pressure reading of 140/90 requires close medical supervision.

Study Findings. Twelve years ago the Society of Actuaries reported on an extensive study based on the lives and deaths represented by almost 4 million life insurance policies. From this vast survey—"The Build and Blood Pressure Study"[1]—insurance experts concluded that:

- Blood pressure above 140/90 is accompanied by increased morbidity and requires close medical attention.
- Even small increments in either systolic or diastolic blood pressure progressively and steeply shorten life expectancy.

Other Studies. Studies conducted with large numbers of patients since that time have echoed the above findings. Two studies published in 1970—the VA Cooperative Study Group on "Effects of Treatment on Morbidity in Hypertension"[2] and the "Framingham Study"[3]—suggest that treatment of even mild hypertension may, over time, offer significant benefits to the patient.

Another Point of View. Although a growing body of studies suggests that treatment of mild hypertension is warranted, medical opinion is not unanimous. Some clinicians recommend that drug treatment for mild hypertension be reserved for patients with additional risk factors such as smoking, high cholesterol levels, heart or kidney involvement, or a family history of vascular disease. Dr. Walter M. Kirkendall stated this position in his recent paper "What's With Hypertension These Days?"[4] Discussing the management of hypertension in patients with a sustained diastolic pressure up to 100 mm Hg, he said: "Generally, I do not recommend antihypertensive therapy unless patient's blood pressure approaches the upper limit for the group and a number of adverse factors exist, such as male sex, family history of vascular disease, youth, evidence of heart or kidney involvement."



Drug Therapy for Hypertension. Although opinion varies on when to start drug therapy for mild hypertension, many physicians agree that treatment should start with a thiazide diuretic such as HydroDIURIL. For the adult patient, the usual starting dosage is 50 mg b.i.d. Dosage adjustments are recommended as the patient responds to treatment. The patient whose therapy begins with HydroDIURIL frequently can continue to benefit from it, because HydroDIURIL usually maintains its antihypertensive effect even when therapy is prolonged.

MSD
MERCK SHARP & DOHME

25- and 50-mg tablets

HydroDIURIL®
(Hydrochlorothiazide|MSD)

Therapy to Start With

For a brief summary of prescribing information, please see next page.

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25- and 50-mg tablets

HydroDIURIL®

(Hydrochlorothiazide|MSD)

Therapy to Start With

Drug Therapy for Hypertension. Although opinion varies on when to start drug therapy for mild hypertension, many physicians agree that treatment should start with a thiazide diuretic such as HydroDIURIL. For the adult patient, the usual starting dosage is 50 mg b.i.d. Dosage adjustments are recommended as the patient responds to treatment. The patient whose therapy begins with HydroDIURIL frequently can continue to benefit from it, because HydroDIURIL usually maintains its antihypertensive effect even when therapy is prolonged.

CONTRAINDICATIONS: Anuria; increasing azotemia and oliguria during treatment of severe progressive renal disease. Known sensitivity to this compound. Nursing mothers; if use of drug is deemed essential, patient should stop nursing.

WARNINGS: May precipitate or increase azotemia. Use special caution in impaired renal function to avoid cumulative or toxic effects. Minor alterations of fluid and electrolyte balance may precipitate coma in hepatic cirrhosis.

When used with other antihypertensive drugs, careful observation for changes in blood pressure must be made, especially during initial therapy. Dosage of other antihypertensive agents, especially ganglion blockers, must be reduced by at least 50% because HydroDIURIL potentiates their action.

Stenosis and ulceration of the small bowel causing obstruction, hemorrhage, and perforation have been reported with the use of enteric-coated potassium tablets, either alone or with nonenteric-coated thiazides. Surgery was frequently required, and deaths have occurred. Such formulations should be used only when indicated and when dietary supplementation is impractical. Discontinue immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occurs.

Thiazides cross placenta and appear in cord blood. In women of childbearing age, potential benefits must be weighed against possible hazards to fetus, such as fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult.

The possibility of sensitivity reactions should be considered in patients with a history of allergy or bronchial asthma. The possibility of exacerbation or activation of systemic lupus erythematosus has been reported for sulfonamide derivatives, including thiazides.

PRECAUTIONS: Check for signs of fluid and electrolyte imbalance, particularly if vomiting is excessive or patient is receiving parenteral fluids. Warning signs, irrespective of cause, are dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, and gastrointestinal disturbances. Hypokalemia may develop (especially with brisk diuresis) in severe cirrhosis; with concomitant steroid or ACTH therapy; or with inadequate electrolyte intake. Digitalis therapy may exaggerate metabolic effects of hypokalemia, especially with reference to myocardial activity. Hypokalemia may be avoided or treated by use of potassium chloride or giving foods with a high potassium content. Similarly, any chloride deficit may be corrected by use of ammonium chloride (except in patients with hepatic disease) and largely prevented by a near normal salt intake. Hypochloremic alkalosis occurs infrequently and is rarely severe. In severely edematous patients with congestive failure or renal disease, a low salt syndrome may occur if dietary salt is unduly restricted, especially during hot weather.

Thiazides may increase responsiveness to tubocurarine. The antihypertensive effect of the drug may be enhanced in the postsympathectomy patient. Arterial responsiveness to norepinephrine is decreased, necessitating care in surgical patients. Discontinue drug 48 hours before elective surgery. Orthostatic hypotension may occur and may be potentiated by alcohol, barbiturates, or narcotics.

Pathological changes in the parathyroid glands with hypercalcemia and hypophosphatemia have been seen in a few patients on prolonged thiazide therapy. The effect of discontinuing thiazide therapy on serum calcium and phosphorus levels may be helpful in assessing the need for parathyroid surgery in such patients. Parathyroidectomy has elicited subjective clinical improvement in most patients, but has no effect on hypertension. Thiazide therapy may be resumed after surgery.

Use cautiously in hyperuricemic or gouty patients; gout may be precipitated. May affect insulin requirements in diabetics; may induce hyperglycemia and glycosuria in latent diabetics.

ADVERSE REACTIONS: Rare reactions include thrombocytopenia, leukopenia, agranulocytosis, aplastic anemia, cholestasis, and pericholangiolitic hepatitis. Nausea, vomiting, diarrhea, dizziness, vertigo, paresthesias, transient blurred vision, sialadenitis, purpura, rash, urticaria, photosensitivity, or other hypersensitivity reactions may occur. Cutaneous vasculitis precipitated by thiazide diuretics has been reported in elderly patients on repeated and continuing exposure to several drugs. Scattered reports have linked thiazides to pancreatitis, xanthopsia, neonatal thrombocytopenia, and neonatal jaundice. When adverse reactions are moderate or severe, the dosage of thiazides should be reduced or therapy withdrawn.

For more detailed information, consult your MSD Representative or see the Direction Circular. Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, Pa. 19486

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He won't resist feeling better with Mylanta®

Because the taste is good.

- ☐ promptly relieves hyperacidity
- ☐ also relieves fullness and bloating
- ☐ non-constipating



LIQUID **MYLANTA**® TABLETS

aluminum and magnesium hydroxides with simethicone

STUART PHARMACEUTICALS | Division of ICI America Inc. | Wilmington, Del. 19899 | Pasadena, Calif. 91109



a new outlook in chronic pain

of moderate to severe intensity

Though Talwin® can be compared to codeine in analgesic efficacy, it is not a narcotic. So patients receiving Talwin for prolonged periods face fewer of the consequences you've come to expect with narcotic analgesics. And that, in the long run, can mean a better outlook for your chronic-pain patient.

Talwin Tablets are:

- **Comparable to codeine in analgesic efficacy:** one 50 mg. Talwin Tablet appears equivalent in analgesic effect to 60 mg. (1 gr.) of codeine. Onset of significant analgesia usually occurs within 15 to 30 minutes. Analgesia is usually maintained for 3 hours or longer.
- **Tolerance not a problem:** tolerance to the analgesic effect of Talwin Tablets has not been reported, and no significant changes in clinical laboratory parameters attributable to the drug have been reported.
- **Dependence rarely a problem:** during three years of wide clinical use, only a few cases of dependence have been reported. In prescribing Talwin for chronic use, the physician should take precautions to avoid increases in dose by the patient and to prevent the use of the drug in anticipation of pain rather than for the relief of pain.
- **Not subject to narcotic controls:** convenient to prescribe – day or night – even by phone.
- **Generally well tolerated by most patients:** infrequently cause decrease in blood pressure or tachycardia; rarely cause respiratory depression or urinary retention; seldom cause diarrhea or constipation. If dizziness, lightheadedness, nausea or vomiting are encountered, these effects tend to be self-limiting and to decrease after the first few doses. (See last page of this advertisement for a complete discussion of adverse reactions and a brief discussion of other Prescribing Information.)

50 mg. Tablets

Talwin®

brand of

pentazocine (as hydrochloride)

the long-range analgesic

a new outlook in chronic pain

of moderate to severe intensity



Contraindications: Talwin, brand of pentazocine (as hydrochloride), should not be administered to patients who are hypersensitive to it.

Warnings: *Head Injury and Increased Intracranial Pressure.* The respiratory depressant effects of Talwin and its potential for elevating cerebrospinal fluid pressure may be markedly exaggerated in the presence of head injury, other intracranial lesions, or a pre-existing increase in intracranial pressure. Furthermore, Talwin can produce effects which may obscure the clinical course of patients with head injuries. In such patients, Talwin must be used with extreme caution and only if its use is deemed essential.

Usage in Pregnancy. Safe use of Talwin during pregnancy (other than labor) has not been established. Animal reproduction studies have not demonstrated teratogenic or embryotoxic effects. However, Talwin should be administered to pregnant patients (other than labor) only when, in the judgment of the physician, the potential benefits outweigh the possible hazards. Patients receiving Talwin during labor have experienced no adverse effects other than those that occur with commonly used analgesics. Talwin should be used with caution in women delivering premature infants.

Drug Dependence. There have been instances of psychological and physical dependence on parenteral Talwin in patients with a history of drug abuse and, rarely, in patients without such a history. Abrupt discontinuance following the extended use of parenteral Talwin has resulted in withdrawal symptoms. There have been a few reports of dependence and of withdrawal symptoms with orally administered Talwin. Patients with a history of drug dependence should be under close supervision while receiving Talwin orally.

In prescribing Talwin for chronic use, the physician should take precautions to avoid increases in dose by the patient and to prevent the use of the drug in anticipation of pain rather than for the relief of pain.

Acute CNS Manifestations. Patients receiving therapeutic doses of Talwin have experienced, in rare instances, hallucinations (usually visual), disorientation, and confusion which have cleared spontaneously within a period of hours. The mechanism of this reaction is not known. Such patients should be very closely observed and vital signs checked. If the drug is reinstituted it should be done with caution since the acute CNS manifestations may recur.

Usage in Children. Because clinical experience in children under 12 years of age is limited, administration of Talwin in this age group is not recommended.

Ambulatory Patients. Since sedation, dizziness, and occasional euphoria have been noted, ambulatory patients should be warned not to operate machinery, drive cars, or unnecessarily expose themselves to hazards.

Precautions: *Certain Respiratory Conditions.* Although respiratory depression has rarely been reported after oral administration of Talwin, the drug should be administered with caution to patients with respiratory depression from any cause, severe bronchial asthma and other obstructive respiratory conditions, or cyanosis.

Impaired Renal or Hepatic Function. Decreased metabolism of the drug by the liver in extensive liver disease may predispose to accentuation of side effects. Although laboratory tests have not indicated that Talwin causes or increases renal or hepatic impairment, the drug should be administered with caution to patients with such impairment.

Myocardial Infarction. As with all drugs, Talwin should be used with caution in patients with myocardial infarction who have nausea or vomiting.

Biliary Surgery. Until further experience is gained with the effects of Talwin on the sphincter of Oddi, the drug should be used with caution in patients about to undergo surgery of the biliary tract.

Patients Receiving Narcotics. Talwin is a mild narcotic antagonist. Some patients previously receiving narcotics have experienced mild withdrawal symptoms after receiving Talwin.

CNS Effect. Caution should be used when Talwin is administered to patients prone to seizures; seizures have occurred in a few such patients in association with the use of Talwin although no cause and effect relationship has been established.

Adverse Reactions: Reactions reported after oral administration of Talwin include *gastrointestinal:* nausea, vomiting; infrequently constipation; and rarely abdominal distress, anorexia, diarrhea. *CNS effects:* dizziness, lightheadedness, sedation, euphoria, headache; infrequently weakness, disturbed dreams, insomnia, syncope, visual blurring and focusing difficulty, hallucinations (see *Acute CNS Manifestations* under WARNINGS); and rarely tremor, irritability, excitement, tinnitus. *Autonomic:* sweating; infrequently flushing; and rarely chills. *Allergic:* infrequently rash; and rarely urticaria, edema of the face. *Cardiovascular:* infrequently decrease in blood pressure, tachycardia. *Other:* rarely respiratory depression, urinary retention.

Dosage and Administration: *Adults.* The usual initial adult dose is 1 tablet (50 mg.) every three or four hours. This may be increased to 2 tablets (100 mg.) when needed. Total daily dosage should not exceed 600 mg.

When antiinflammatory or antipyretic effects are desired in addition to analgesia, aspirin can be administered concomitantly with Talwin.

Children Under 12 Years of Age. Since clinical experience in children under 12 years of age is limited, administration of Talwin in this age group is not recommended.

Duration of Therapy. Patients with chronic pain who have received Talwin orally for prolonged periods have not experienced withdrawal symptoms even when administration was abruptly discontinued (see WARNINGS). No tolerance to the analgesic effect has been observed. Laboratory tests of blood and urine and of liver and kidney function have revealed no significant abnormalities after prolonged administration of Talwin.

Overdosage: *Manifestations.* Clinical experience with Talwin overdosage has been insufficient to define the signs of this condition.

Treatment. Oxygen, intravenous fluids, vasopressors, and other supportive measures should be employed as indicated. Assisted or controlled ventilation should also be considered. Although nalorphine and levallorphan are *not* effective antidotes for respiratory depression due to overdosage or unusual sensitivity to Talwin, parenteral naloxone (Narcan®, available through Endo Laboratories) is a specific and effective antagonist. If naloxone is not available, parenteral administration of the analeptic, methylphenidate (Ritalin®), may be of value if respiratory depression occurs.

Talwin is not subject to narcotic controls.

How Supplied: Tablets, peach color, scored. Each tablet contains Talwin (brand of pentazocine) as hydrochloride equivalent to 50 mg. base. Bottles of 100.

Winthrop Winthrop Laboratories, New York, N. Y. 10016 (1583)

50 mg. Tablets

Talwin®

brand of

pentazocine (as hydrochloride)

the long-range analgesic

Maine Heart Association Notes
20 Winter Street, Augusta, Maine

Cardial Tamponade and Constrictive Pericarditis Diagnosis — Part I

Ralph Shabetai, M.D.*

The intrapericardial pressure in normal individuals is subatmospheric. Cardiac tamponade exists when the intrapericardial pressure is appreciably increased by fluid. Its severity depends upon the rate of accumulation and the volume of pericardial fluid. Important causes include trauma, infection and ruptured aortic aneurysm or myocardial infarction.

Equal compression of all cardiac chambers by the fluid explains the clinical picture: elevated venous pressure, pulmonary congestion, hypotension and a quiet heart. One or two hundred ml of fluid accumulated rapidly suffice to cause tamponade, as in trauma. In infectious and malignant effusions the onset, although less acute, may still be rapid. If an effusion collects over many days or weeks, several hundred ml may gather before tamponade ensues.

In extreme cases, clinical examination discloses impaired cerebral function, pallor, sweating, and impalpable or weak radial pulses. Cerebral symptoms are less prominent with milder tamponade but the patient may note chest discomfort and dyspnea.

Pulsus paradoxus, an abnormal inspiratory fall in arterial pressure, is almost invariable with tamponade. The pulse diminishes or entirely disappears during each inspiration. Pulsus paradoxus may be difficult to elicit under three circumstances: profound hypotension, mild tamponade, and tachypnea. When the radial pulse is impalpable, paradoxus may be elicited from the femoral pulse. To appreciate pulsus paradoxus in mild cases, it may be necessary to have the patient breathe as deeply and slowly as possible without straining at end inspiration or expiration. However, when the aim is to measure the severity rather than simply detect pulsus paradoxus, respiration should be maintained as normal as possible, because hyperventilation exaggerates pulsus paradoxus. Blood pressure is measured with a cuff, releasing the pressure as slowly and evenly as possible. Initially, systolic sounds are audible only during expiration, but as cuff pressure falls, a point is reached when the sounds are heard throughout the respiratory cycle. The pressure difference between these two points estimates pulsus paradoxus.

Elevated venous pressure is best observed with the thorax elevated, frequently to 90 degrees. Venous pulsations are visible inferior and anterior to the ear and display a single slow expansion followed by a rapid collapse synchronous with the carotid pulse. Normal inspiratory variation and fall in venous pressure is often maintained. Precordial activity is absent or diminished, but if the apex beat is palpable cardiac dullness may be percussed lateral to it. The heart sounds are usually normal, sometimes muffled. A pericardial friction rub may be heard, and DOES NOT PRECLUDE EFFUSION. The ECG may show sinus tachycardia, decreased voltage, elevated ST segments, and in severe cases, electrical alternans. The chest roentgenograph often reveals a globular increase in the cardio-pericardial silhouette with disproportionately clear lung fields. If conditions permit fluoroscopy, it will be observed that the cardiac borders hardly pulsate while the aortic pulsations are vigorous. Hilar vessel shadows are often obliterated.

The presence of pericardial effusion can be confirmed most conveniently and safely by echocardiography. When this facility is not available, special radiological procedures such as intravenous CO_2 injection or angiocardiography may be employed.

Constrictive Pericarditis

In this disorder, the heart is compressed not by fluid but by the visceral pericardium. In the majority of cases, all cardiac chambers are equally involved and this explains the hemodynamic similarities to tamponade. Intrapericardial pressure cannot vary during the respiratory and cardiac cycles because the pericardial space is obliterated. This explains the differences from tamponade. The etiology is unknown in most instances, tuberculosis being much less common than formerly. Other important causes include malignancy, therapeutic radiation, collagen diseases and infections.

Chronic constrictive pericarditis develops insidiously over many years. The pericardium often becomes heavily calcified. In recent series, many cases are subacute and develop in weeks or months, a difference which reflects the changing etiology.

Patients with chronic constrictive pericarditis frequently are cachectic, pale, mildly jaundiced and cyanosed. The venous pressure is greatly elevated and the arterial pulse pressure may be small, although pulsus paradoxus occurs in only a third of the cases. The venous pulse displays two rapidly collapsing waves, one in systole, the other diastolic. The marked

Continued on Page 127

*University of Kentucky, Department of Medicine, Lexington, Kentucky.

Prepared by the Maine Heart Association for this Journal.

Honorary Pin Recipients Receive Awards at 1972 Annual Session of the M.M.A.

Presentation of the Association's Honorary Pins were made by Linus J. Stitham, M.D., President of the M.M.A., at the Annual Banquet, Monday evening, June 12 at 7:00 P.M.

FIFTY-YEAR PINS

Fifty-Year Lapel Pins will be presented to the following members who were graduated from Medical School in 1922:

Cumberland County

FRANCIS M. DOOLEY, M.D. – Dr. Dooley attended Bowdoin Medical School and received his medical degree from Yale University School of Medicine in 1922. He interned at the Maine General Hospital in Portland, Maine from 1922 to 1923. A native of Portland, Dr. Dooley has practiced in that area since 1923.



Dr. Lombard



Dr. Mundie

REGINALD T. LOMBARD, M.D. – A native of Greene, Maine, Dr. Lombard attended Bowdoin Medical School and received his medical degree from Yale University School of Medicine in 1922. He served a surgical internship in Waterbury, Connecticut from 1922 to 1923 and was adjunct to Joseph B. Drummond, M.D., FACS, at the State Street Hospital in Portland, Maine for 13 years. He has been affiliated with the Maine Medical Center and the Mercy Hospital, where he has practiced obstetrics and gynecology since 1923. During World War II, Dr. Lombard served in the U.S. Air Force and was discharged as a Colonel.

Washington County

PERLEY J. MUNDIE, M.D. – Dr. Mundie, born in Vanceboro, Maine, attended Bowdoin Medical School and received his medical degree from Yale University School of Medicine in 1922. He took postgraduate courses at the Maine General Hospital in Portland, and the University of Pennsylvania. Dr. Mundie, who specializes in otolaryngology, has practiced in Calais, Maine since 1924.



Dr. Kirk



Dr. Dalrymple

FIFTY-FIVE-YEAR PINS

Fifty-Five-Year Pins will be presented to the following members who received Fifty-Year Pins in 1967:

Aroostook County

WILLIAM V. KIRK, M.D. – A native of Dobbin, West Virginia, Dr. Kirk now resides in Eagle Lake, Maine. He attended the University of West Virginia from 1912 to 1913 and received his medical degree from the University of Maryland School of Medicine in 1917. Dr. Kirk interned and served a surgical residency at the St. Joseph Hospital in Baltimore, Maryland. He was a surgeon at the Northern Maine General Hospital from 1920 to 1954. During World War I, he served as a 1st Lieutenant.

Lincoln-Sagadahoc County

SIDNEY C. DALRYMPLE, M.D. – Dr. Dalrymple was graduated from Bowdoin College and received his medical degree from Bowdoin Medical School in 1917. He interned at the Waterbury Hospital in Connecticut from 1917 to 1918, the Newton Hospital in Massachusetts from 1919 to 1920 and took postgraduate courses at Harvard Medical School and the London School of Hygiene and Tropical Medicine. His hospital appointments include the Newton, the Waltham, the Leonard Morse and Framingham Union hospitals, all in Massachusetts. He was instructor in Pathology at Boston University School of Medicine from 1927 to 1932, associate professor of Pathology and Bacteriology at Tufts Medical and Dental Schools from 1932 to 1937, and associate professor of Bacteriology at Boston University School of Medicine from 1937 to 1946; the last four years of which he was on leave of absence while on active duty. Dr. Dalrymple served in the U.S. Navy and was discharged as a Captain. A native of West Medford, Massachusetts, Dr. Dalrymple has practiced in Lincoln, Massachusetts since 1957.

Washington County

DACOSTA F. BENNET, M.D. – Born in Lubec, Maine, Dr. Bennet has been a general practitioner in that town since 1919.

He was graduated from the University of Maine in 1909 and received his medical degree from the University of Maryland School of Medicine in 1917. Dr. Bennet took a postgraduate course at the New York Lying-In Hospital and practiced at the Penniman Hospital in Virginia for one year.

SIXTY-YEAR PIN

A Sixty-Year Pin will be presented to the following member who received his Fifty-Year Pin in 1962:

Waldo County

FOSTER C. SMALL, M.D. – Dr. Small was President of the Maine Medical Association in 1950-1951, President-elect in 1949-1950, Council Chairman in 1948-1949 and, prior to that, had served as Councilor for the Fourth District. He received his medical degree from the University of Vermont College of Medicine in 1912. Dr. Small was affiliated with the late Dr. Eugene Tapley at the Bradbury Memorial Hospital for 11 years, and in 1921 joined the medical and surgical staff of the Waldo County General Hospital in Belfast, Maine. During World War I, he was chairman of the Medical Advisory Board, and in World War II, sole examiner of all inductees in Waldo County. He is a native of Swanville, Maine.



Dr. Small

NEWS FROM BLUE CROSS AND BLUE SHIELD — *Continued from Page* 122

ternist's operating expenses.

Previously untreatable illnesses are now successfully treated through vast improvements in our technology. Innovative methods of treatment have made it necessary for the physician to acquaint himself with new techniques that were unimaginable only 10 years ago.

Though the number of doctors in the United States has risen in the past 20 years, the supply has not kept up with the tremendous increase in demand, placing on the physician a burden of more working hours and an increased staff. In 1969, physicians worked an average of 63 hours per week. Under current prevalent construction contracts, a sheet metal worker could earn $51,802 a year and a carpenter could earn $48,793 a year, if they worked the same number of hours as the physician.

Many other elements of the physician's expenses are increasing, forcing the doctor to increase his charges.

Malpractice protection insurance premiums are the most rapidly advancing cost items of private practice and, in some areas, this type of protection cannot even be obtained.

Utilities, office and medical supplies, business insurance and equipment are all constantly rising.

Physicians are working to control the cost of medical care, while still providing the utmost in quality.

Many doctors have improved their efficiency and productivity by improving office procedures and by delegating some lesser medical tasks to qualified, well-trained personnel on their staff.

Medical societies have initiated peer review committees to assist in maintaining fair and reasonable costs for medical services.

Some physicians have joined together to operate out of the same office in order to share expenses. This decreases individual overhead expense and helps to stabilize fees.

The cost of medical care is rising, but with the combined help of the public, the physicians and the health care system as a whole, we can solve the cost problems of today, while improving the health care of tomorrow.

Annual Report of the President Woman's Auxiliary to the Cumberland County Medical Society – 1971-1972

With apologies to H. W. Longfellow and with help from Susie Hallett.

An editor considers himself fortunate indeed if more than once in a lifetime, he receives a report for publication which deserves special notice because of its excellence in form and content. Mrs. Lawrence Crane's "Annual Report of the President of the Woman's Auxiliary to the Cumberland County Medical Society" leaps into that category and it is reprinted here with special thanks. – *Ed.*

By the shores of shining Casco
In the greening month of May.
By the splashing Big-Sea-Waters
Members came to plan the day.
Came to question, listen, answer,
Face to face to speak together,
Smoke the Peace-Pipe, Crane and Porter,
Start Auxiliary on its way.

Janet of the Tribe McGuire,
Though her swift foot fast was bound,
Passed the pleasant summer writing
Squaws of Medicine Men she found
To Pow Wow at the Thomas Teepee,
Welcome squaws and Interne maidens,
On the sixth day of October,
They would come from leagues around.

Sumptuous was the feasting table,
As the squaws and chieftains came.
Ann and Ping and Lynn Goduti
Helping each one know each name.
Gracious, charming, offered sweet meats,
Showed us how to speak together,
How to understand each other,
Smiling, serving, all the same.

In the caverns of the teepee,
Chieftains came to tell us why
One can learn to heal by seeing,
Helping braves to live not die.
And the Sister came to thank us
For our care in years gone by,
Grateful she for useful wampum,
And we pledged our hope to try.

Then the Chieftain Frances taught us,
Taught her sacred, nursing creed.
And the laughing maidens marvelled
At her skillfulness and speed,
But she murmured as we praised her,
"State supplies the aids we need.
Better wampum for the learner,
For their clothes and mouths to feed."

Then came Agnes from the Center,
With her maidens and machines.
And the wise men from the far lands,
To explain their scopes and screens.
"Many minds can learn together
With the pictures and the speaking.
Help us help more students sooner,
Start Resource Center with your means."

And the Chairmen Walker, Gibbons,
And McCann would then advise,
From the Council Fire musing,
Watching glowing embers rise.
Smoked in silence, then agreed,
"All are right, none is wrong,
We will stretch the hand to all men."
They decreed in words so wise.

Then the maize field grew and ripened
Harvest time became the Fall.
All the squaws came from their wigwams,
Gathered at the Chieftain's call.
Bringing bounty for the Tasting,
Casseroles and Indian corn,
Tables gaily decked with Pilgrims,
For Susie, Connie, and Petie Pawle.

Round about the festive table
Danced the happy medicine men.
Full of joy and fire water,
Making wampum ten times ten.
Hallett, Martin, Branson serving,
In their derbies, merry men.
Filled the nursing needs in Portland,
To appease them once again.

And the shadows lengthened onward
As the days of Yule drew near.
Came the medicine squaws and maidens
For Christmas joy and news to hear.

A pleasant journey to the North land
By the waters and the pine trees
Shared the punch bowl and the seed cakes,
Ann of Prince's Pt.'s good cheer.

Through the long and dreary winter,
Squaws from wigwams had to flee.
Sought to know and love their neighbor,
Offered hospitality.
Squaws assembled from each teepee
For wine of grape and bread and tea,
Old and new, they passed the Peace-Pipe
In all the tribes by the shining sea.

Fran and Harriet, helpful, planning,
Minded us what words are spoken.
Taught our ancient fathers' ways,
And kept the treaty's word unbroken.
Mary Martin, Marcia Webber
Help wampum belt for all the tribe.
Labored with the maiden Golfarb,
Kept the tally for the scribe.

Betty Stocks and Phyllis Libby
Aided scribe Lou Agan, too.
Wrote the legend of Auxiliary
In '71 and '72.
And sending signals from the campfire,
Mary Thompson, tom tom beating,
Relays news to every nation,
Tells our people of the meeting.

Hanley from the Brunswick nation,
Handles all our legislation.
Tommy shelters the Foundation,
Making loans with justification.
Martha keeps our minds at ease.
Knowles and Cummings aim to please.
Wrapt in visions, lost in dreaming,
Planning, promising, hoping, scheming.

Face to face we speak together,
Medicine squaw and interne daughter,
That the tribes of Maine might prosper,
Heed the peace signs you have taught her.
O Great Spirit, lead us, help us,
Guard the ancient Healing Totem,
In the land of Cumberland people,
By the shining Big-Sea Water.

Respectfully submitted,
MRS. LAWRENCE CRANE

MAINE HEART ASSOCIATION NOTES — *Continued from Page* 123

diastolic collapse may help to differentiate this condition from tamponade. The positive filling waves are much less prominent. The normal decrease in venous pressure with inspiration is absent and paradoxical expansion may be seen.

Elevated venous pressure, hepatic and renal underperfusion and congestion, and protein losing enteropathy combine to make edema, often with disproportionate ascites, a prominent feature of the disease. The liver may be enlarged or cirrhotic and its function severely impaired.

Precordial activity is absent or decreased. Sometimes systolic retractions are found. A loud protodiastolic third heart sound is heard all over the precordium. The ECG may show wide bifid P waves until atrial fibrillation supervenes. QRS voltage is decreased and the T wave is inverted in most leads. The heart appears normal in size to moderately enlarged on chest roentgenographs. Calcification may be seen readily on plain chest films, especially in the lateral projection. Thus the radiologist may be the first to call attention to the correct diagnosis. Fluoroscopy confirms calcification and reveals decreased amplitude of motion of the heart walls.

Cachexia, anasarca, liver failure and a high venous pressure constitute a striking clinical picture. Nevertheless, the diagnosis is often missed because the patient is considered to have heart failure or primary liver disease. However, the venous pressure is normal in non-cardiopericardial causes of edema. If the pericardium is not calcified, final distinction from myocardial disease may require cardiac catheterization.

Subacute cases show less cachexia and liver damage. One can often obtain a history of recent acute pericarditis or chest trauma. The pericardium is not calcified and pulsus paradoxus is more common than in the chronic form. The diagnosis should be suspected in any patient with unexplained weight gain, dyspnea, edema, hepatomegaly and raised venous pressure who does not have heart disease of easily recognized etiology.

(Part II will appear in the July 1972 issue)

DEAN H. FISHER, M.D.
COMMISSIONER

State of Maine

Department of Health and Welfare

Occupational Safety and Health Act of 1970*

After almost three years of a controversial legislative battle, President Nixon signed into law the Occupational Safety and Health Act of 1970 (OSHA). This Act insures, as far as possible, every working man and woman in the nation safe and healthful working conditions. The U. S. Secretary of Labor is empowered to promulgate and enforce any National Occupational Safety concensus standard or any established Federal standard necessary to insure a safe and healthful work place. This Act also created the National Institute of Occupational Safety and Health, located within the U. S. Department of Health, Education and Welfare, authorized to develop and establish recommended safety and health standards.

On April 28, 1971, OSHA became effective and in doing so preempted all State statutes pertaining to Occupational Safety and Health. The State may resume jurisdiction over Occupational Safety and Health by submitting an acceptable State Plan to the U. S. Secretary of Labor. The Plan must show that the State has, or will have, statutory, man power and funding capabilities to adequately assume jurisdiction over Occupational Safety and Health. The State has three years to assume these responsibilities and during the interim, by agreement with the U. S. Department of Labor, the various state agencies involved with OSHA are still being permitted to enforce their present regulations and statutes. A number of state agencies are presently involved with the State Plan; e.g., Department of Labor – safety; the Department of Health and Welfare – health; Department of Insurance – fire protection; Department of Agriculture – farm workers; and Public Utilities Commission – safety in utilities. OSHA presently requires each employer to maintain records of work related deaths, injuries, and illnesses involving medical treatment, loss of consciousness, restriction from work or motion or transfer to another job but not minor injuries requiring only first aid treatment. Employers are also required to maintain records of employee exposure to potentially toxic materials or harmful physical agents. Maine's work places are presently having to conform to the Occupational Safety and Health standards promulgated by the U. S. Department of Labor and by several State agencies. These regulations in part cover the following: air contaminants, noise, radiation, sanitation, ventilation, storage of hazardous materials, personnel protective equipment, medical and first aid, fire protection, electrical, welding, machinery guarding, etc.

Recognizing that Federal legislation was eminent, the Department of Health and Welfare, in cooperation with the U. S. Public Health Service, Bureau of Occupational Safety and Health, in February 1970, initiated a joint Occupational Health survey covering 180 statistically selected Maine working establishments. The universe in this case consisted of approximately 1,400 establishments employing approximately 124,000 employees. The following paragraphs taken from the preliminary draft of the survey, illustrate Occupational Health conditions as they are believed to exist.

"Thirty percent of these 124,000 employees, or 37,000, work in plants having working conditions which, in the opinion of our surveyors, warrant further investigation and possible corrective action immediately or within one year. By comparison, this indicates that 16 percent or over 220 plants have conditions which should be investigated within one year.

"Several things should be pointed out with regard to this information; first, without a functional Occupational Health Program, there is no way of identifying these 220 estimated plants which are in need of industrial hygiene services. Secondly, this is at best an estimate and is taken only from original samples of 1,400 plants and has admittedly excluded several potentially hazardous occupations such as lumbering, fishing, and farming.

"The results of the survey indicate that approximately 40 percent of the plants surveyed do not have regular agreements with a physician to provide emergency or other medical care should such a need arise. Thirty-eight percent of the plants, representing 25 percent of the employees, do not require pre-employment physicals. Ninety-two percent of the work places do not have a nurse at regular times. These places cover 67 percent of the work force surveyed. Of those companies with hazards, 20 percent do not provide examinations.

"In Maine, there are only five physicians listed as belonging to the Industrial Medical Association or a specialty related to Occupational Medicine. There are 90 nurses listed as specializing in industrial nursing. Both of these

Continued on Page 136

*From the Division of Health Engineering.

Necrologies

John S. Hopping, M.D.

1915-1972

Dr. John S. Hopping, 56, of Hope, Maine died on March 29 after being stricken with a heart attack at the wheel of his car while on his way for a visit in Maryland.

A general practitioner in Knox County with an office in East Union from 1958 to 1965, he retired last June as director of college health at Wittenberg College in Springfield, Ohio and made his home in Hope.

Born at Bloomfield, New Jersey, June 29, 1915, he was the son of Wesley and Anna Schofield Hopping. He was graduated from Louisiana State University and received his medical degree from Hahnemann Medical College in Philadelphia in 1940. Following an internship at Newark City Hospital in New Jersey, he entered the Army Medical Corps and served in the European Theatre of operations. Following World War II, Dr. Hopping practiced in Hanover, New Jersey, until coming to Maine in 1958.

Dr. Hopping was a member of the Knox County Medical Society, the Maine Medical Association and the American Medical Association.

Surviving are his widow, Marjorie Crouthamel Hopping; three daughters, Mrs. Lillian Newman of La Plata, Maryland, Mrs. Ronald Kenoyer of North Whitefield and Mrs. Paul Boisvert of North Berwick; and five grandchildren.

Fay K. Alexander, M.D.

1903-1972

Dr. Fay K. Alexander, 68, of Lincolnville, Maine, died suddenly on March 30 while vacationing in Portugal.

He was born in Rochester, Minnesota on May 13, 1903, son of Merton W. and Florence A. Alexander. Dr. Alexander was graduated from the University of Minnesota in 1924 and received his medical degree from the University of Minnesota Medical School in 1928. He interned and did graduate work at the University of Pennsylvania, and practiced radiology in Philadelphia over thirty years. In 1962, he moved to Lincolnville where he practiced his specialty at the Knox County and Camden Community hospitals until his retirement in 1968.

Dr. Alexander was a member of the Knox County Medical Society and the Maine Medical Association. He was also a member of the American Medical Association, a Fellow of the American College of Radiology, a Past President of the Philadelphia Roentgen Ray Society, a Fellow of the Philadelphia College of Physicians, and for many years a member of the faculty of the Graduate School of Medicine of the University of Pennsylvania. An enthusiastic yachtsman and golfer, he was a member of the Megunticook Golf Club and the Camden Businessmen's Association. Vitally interested in conservation, he was on the board of directors of the recently formed Megunticook Lake Association.

Surviving are his widow, Leone Furtney Alexander; two sons, Dr. Fay Knight Alexander, Jr. of Marblehead, Massachusetts and William Sullivan Alexander of Albion, Maine; four grandchildren, and a sister, Mrs. Laurence Van Hook of Long Beach, California.

Leon D. Herring, M.D.

1892-1972

Dr. Leon D. Herring, 79, of Winthrop, Maine died on April 17 at Marathon, Florida, following a long illness.

He was born in Fairfield, Maine on October 14, 1892, son of Eugene C. and Annie E. Herring. Dr. Herring was graduated from Colby College and received his medical degree from the New York University School of Medicine in 1925. He interned at the Mountainside Hospital in Montclair, New Jersey and did postgraduate work at Cook County Hospital in Chicago and the Massachusetts General Hospital. In 1926, Dr. Herring located in Winthrop.

Dr. Herring was a member and a past president of the Kennebec County Medical Association and a member of the Maine Medical Association. He served as chief of staff at the Augusta General Hospital, was a member of the courtesy staff of the Central Maine General Hospital and the Gardiner General Hospital. A veteran of World War I, he was a member and past commander of the Alfred W. Maxwell Jr. Post, American Legion in Winthrop.

Surviving are his widow, Angelia M. Herring, and a sister, Miss J. Pauline Herring of Westbrook.

John D. Southworth, M.D.

1890-1972

Dr. John D. Southworth, 81, of Hartland, Maine died on April 16 at a Bangor hospital after a long illness.

He was born in Salem, Ohio on July 27, 1890, son of George and Ada D. Southworth. Dr. Southworth was graduated from Kenyon College in Ohio in 1911 and received his medical degree from Johns Hopkins University School of Medicine in 1918. He interned at the New York Hospital and served a residency at the St. Mary's Free Hospital for Children in New York City. From 1923 to 1928, Dr. Southworth and his wife, Louise, who died in 1959, served as medical missionaries in Japan.

A veteran of World War I and II, he retired with the rank of Lieutenant Colonel in the Army Medical Corps. Following World War II, Dr. Southworth was with the Veterans Administration at Mt. Alto Hospital in Washington, D.C. and later at the Veterans Administration Center at Togus. He was a radiologist at the Calais Memorial Hospital before moving to Hartland in 1960.

Dr. Southworth was an honorary member of the Somerset County Medical Society and the Maine Medical Association, receiving a 50-year pin in 1968. He was also a member of the American Medical Association and the American Board of Radiologists.

Surviving are three sons, John D. Southworth, Jr. of Killington, Vermont, Robert T. Southworth of Houston, Texas and Kenneth S. Southworth of Milan, Ohio; and one brother, the Rev. George S. Southworth of Cassopolis, Michigan.

In Memoriam

Aroostook County

Wallace B. Somerville, M.D.	Mars Hill

Cumberland County

Niles L. Perkins, M.D.	Bowdoinham

Franklin County

Gunther H. Rowe, M.D.	Chisholm
Currier C. Weymouth, M.D.	Farmington

Hancock County

Eliot T. Stadler, M.D.	West Gouldsboro

Kennebec County

Leon D. Herring, M.D.	Winthrop

Knox County

Fay K. Alexander, M.D.	Lincolnville
John S. Hopping, M.D.	Hope
Anna Platt, M.D.	Rockport

Lincoln-Sagadahoc County

Warren E. Kershner, M.D.	Bath
Joseph I. Smith, M.D.	Bath

Oxford County

Lester Adams, M.D.	Thomaston

Penobscot County

Rand A. Dunham, M.D.	Rye, New Hampshire
Carl J. Hedin, M.D.	Brewer

Somerset County

Franklin P. Ball, M.D.	Bingham
John D. Southworth, M.D.	Hartland
Andrew M. Szendey, M.D.	Madison
Merlon A. Webber, M.D.	Pittsfield

News and Notes

Maine Internist Receives National Medical Honor

Charles W. Steele, M.D., of Lewiston, Maine, received a Special Recognition Award from the American Society of Internal Medicine during its 16th annual meeting in Atlantic City, New Jersey, April 14-16.



Dr. Steele

In presenting the award, Dr. Otto C. Page, ASIM president, praised Dr. Steele's contribution to internal medicine, calling it "a service as unique as the special award we created to acknowledge it."

Dr. Steele engages in private practice in internal medicine and heart disease, and recently retired from active staff positions with many hospitals in his community.

A native of Missouri, he received an A.B. degree in 1927 and an M.A. degree in 1929, both from the University of Missouri, and an M.D. degree from Harvard Medical School in 1931.

He is a fellow of the American College of Physicians and the American Medical Association. As a member of the Health and Special Weapons Committee of the U.S. Civil Defense Council, he is the author of numerous brochures on civil defense.

Founded in 1956, the American Society of Internal Medicine is the only national medical organization devoted solely to the social, economic and legislative aspects of medical care.

World Health Organization Fellowships Available to United States Health Workers

The World Health Organization will make available in 1973 a limited number of short-term fellowships for travel abroad related to the "improvement and expansion of health services" in the United States. This support is to United States citizens engaged in operational or educational aspects of public health.

In selecting applications, a special committee will consider the professional background of the individual, the field and locale of the study proposed, and the utilization of the experience by the applicant on his return. Employees of the Federal Government are not eligible. Applications will not be considered for the pursuit of pure research projects, for attendance at international meetings, nor from students in the midst of training at either the undergraduate or graduate level. Applicants may not be more than 55 years of age.

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Further information may be obtained from Dr. Robert W. Jones, III, Chief, Foreign Students Education Branch, Fogarty International Center, National Institutes of Health, Room B2CO5A, Building 31, Bethesda, Maryland 20014.

County Society Notes

PENOBSCOT

A regular meeting of the Penobscot County Medical Society was held at the Red Lion in Bangor, Maine on December 21, 1971 with the President, Dr. John S. Houlihan, presiding. Approximately twenty-eight members were present.

The minutes of the previous meeting were approved as previously distributed.

Old Business: The revised proposed "bylaws of the Peer Review Committee" were represented by Dr. Hans A. Holzwarth. They were further discussed, revised and found to be acceptable to the Society, pending legal review.

New Business: A resolution in memorium of the death of Dr. Carl J. Hedin was presented by Dr. Mason Trowbridge, Jr.

Dr. Euclid M. Hanbury, Jr., a member of the State Peer Review Committee, presented data and probable problems that have been brought to the attention of that committee.

The current status of the State Peer Review Committee was discussed.

A regular meeting of the Penobscot County Medical Society was held at Sings Polynesian Restaurant in Bangor, Maine on January 18, 1972 with the President, Dr. John S. Houlihan, presiding. Approximately 30 members and guests were present.

The minutes of the previous meeting were approved as corrected.

Announcements: The Interim Meeting of the House of Delegates of the M.M.A. will be held on April 9, 1972 in Waterville.

Representative William Hathaway will be the guest speaker next month discussing the "Health Needs of the Nation."

Old Business: Dr. George W. Wood, III advised the Society that a proposed act would be taken to the special session of the legislature regarding the non-liability of members of the Peer Review Committees.

It was announced that Mr. Thomas W. Cathcart, the Blue Shield physician's representative, will become the executive secretary of the State Peer Review Committee.

Mr. Harry Eliazarian, superintendent of the Bangor State Hospital, discussed the admission policies of that hospital. Various aspects were discussed including the referrals to the Eastern Maine Medical Center emergency room after rejection of Bangor State hospitalization, the proposed system of rejection of admissions at times by nonphysicians, etc.

LEWIS E. PHILLIPS, M.D., *Secretary*

CUMBERLAND

The 366th meeting of the Cumberland County Medical Society was held on February 17, 1972 at the Holiday Inn in Portland, Maine. There were 80 members and guests in attendance. After a pleasant social hour and Roast Beef dinner, the meeting was called to order by the Secretary-Treasurer, Dr. Douglas R. Hill.

It was reported that President Crane was in Sapporo, Japan in an official capacity as physician for the United States Olympic Team, and that Vice-President Branson was away.

It was moved, seconded, and voted to dispense with the minutes of the previous meeting.

The applications of new members were reviewed. Dr. Joseph Fanning, transfer from Androscoggin County Medical Society, was accepted by Cumberland County Medical Society. The first reading of the application for membership of Dr. Philip Keating was referred to the Executive Committee.

A letter from the Maine Special Olympics Committee was reviewed. This worthy project establishes special olympics for the handicapped. It was moved, seconded, and voted to support this Special Olympics Committee with a $100.00 contribution.

The Bylaws came up for additional study. It was moved, seconded and voted to hold off any further discussion of the Bylaws until a future meeting. The Secretary was asked to please mention this in the notice so that the members could be better prepared.

It was announced that the Executive Committee had met with Judith Hannemann on February 8, 1972 and that Mrs. Hannemann will continue to work and look into what she might offer to the Cumberland County Medical Society as an Executive Director. She is to report back to the Executive Committee.

Several announcements were made. The next meeting would be March 16, 1972 at Howard Johnsons in Portland. The program at that time will be on incorporation. The next meeting of the House of Delegates of the Maine Medical Association will be April 9, 1972 at the Thayer Hospital in Waterville.

The program was then introduced by Dr. Hill. Dr. John P. Dow of Pittsfield spoke to the Society on some of the many factors involved in the malpractice insurance field. It was an interesting talk and brought a great deal of questions from the gathered Society.

The meeting was adjourned at 9:30 p.m.

The 367th meeting of the Cumberland County Medical Society was held at Howard Johnson's Motor Inn on Riverside Street, Portland, Maine on Thursday, March 16, 1972. There were 85 members and guests in attendance. A very pleasant Social Hour was followed by Howard Johnson's hot buffet dinner. The buffet was received with mixed emotions by those present.

The meeting was called to order by the President, Dr. Lawrence Crane. The head table consisted of Dr. Richard C. Dillihunt, Chairman of the Program Committee; Mr. Jotham Pierce; Dr. Sidney Branson, Vice President; Mr. Albert Noyes; Dr. Crane; Dr. George F. Sager; Mr. Paul Buckley; and Dr. Hill.

It was moved, seconded, and voted to dispense with the reading of the minutes of the previous meeting. The application of Dr. Philip Keating was read for the second time; it was moved, seconded and voted to accept Dr. Keating into the Society.

A resolution proposed by Dr. John P. Dow following his discussion before the Society in February regarding Malpractice Insurance was read to the Society. It was decided by the Society to bring the idea of the resolution before the House of Delegates meeting in April so that a proposal for study and a resolution might be made by that group if it deemed this move worthy.

It was announced that progress is being made in the discussion between Osteopaths and MDs, and that further meetings between the Executive Committees of the two groups are scheduled.

The April meeting of the Cumberland County Medical Society will be a business meeting and will particularly be concerned with the matter of the revision and acceptance of the proposed bylaws.

Dr. Dillihunt then introduced the speakers of the evening and the program "To Incorporate or Not" was introduced by Mr. Jotham Pierce with a brief discussion of the subject "What is a Corporation?" It began with the idea that originally a corporation was formed for people to invest in an enterprise too big for the employees of the operation to own. Stockholders in-

vested for profits, somebody else did the work, and stockholders gained from dividends. Now in the modern type of incorporation for medical doctors, the effect to be accomplished is in the field of deferred compensation, i.e., money put aside for untaxed, and in the field of health insurance and group insurance benefits with the side limit of possibility of continuity of business and limited liability. The deferred compensation of incorporation is perhaps another type of deferred compensation which is available to many doctors through the Keogh Plan and as a general rule, it was stated that probably it is not worth incorporating unless $10,000 can be deferred annually. It was further stated that although salaries and wages were deductible by the corporation, dividends are not deductible. There are several kinds of deferred plans available under the corporation plans. One is a profit-sharing plan, second is a pension plan and third, fixed benefit plan. In fixed benefit plan, there is no limit to the money that can be put into the plan, whereas the profit-sharing and money-purchased pension plans have a 10-15% limitation. These corporation plans can be funded by a certain percentage through insurance funding, through mutual funds, through variable annuities, through bank trustees, or through personal investing. In general, there were many problems associated with incorporation and for a doctor to enter into a corporation would require a great deal of planning and thought. It is not something that can be done in an individual way, but would require the help of a lawyer, accountant, business manager, and many other types of professional help. It may be the best plan for some doctors; it may not be for others. It would pay to get advice.

The program was well received by the Cumberland County Medical Society and brought some interesting questions and problems.

The meeting was adjourned by President Crane.

DOUGLAS R. HILL, M.D., *Secretary*

KNOX

The Knox County Medical Society met on March 7, 1972 at the Sail Loft. The Mid-Coast Dental Society members were present as guests to hear our speaker, Dr. David G. Reed, discuss sinusitis. Dr. Oram R. Lawry, Jr. presided in the absence of the President, Dr. Henry O. White.

The minutes of the February meeting were read and accepted.

Dr. William E. Nuesse stated that the Penobscot Bay Medical Center is preparing its presentation which will be delivered at the Hill-Burton meetings in April 1972. Dr. William Strauss announced his resignation, effective 1 March 1972, as Director of the Penobscot Bay Medical Center and Mr. Jefferson Ackor was appointed as Acting Executive Director by the Board of Trustees. The Building Committee has met with the architects and the designs and concepts of the new medical center are being developed.

Dr. David G. Reed and Dr. Stuart Martin were voted into active membership in the Knox County Medical Society.

Dr. Peter E. Giustra summarized a recent meeting with Dr. C. Philip Lape and a number of the Knox County physicians concerning the proposed State medical school. It was the concensus of all the physicians in attendance that the State medical school was not a feasible idea at this time. The doctors felt that the quality of the graduates of this medical school would be at an extreme disadvantage if they graduated from a school founded on the concepts that Dr. Lape proposed. Dr. Vincent T. Lathbury recommended that Dr. Giustra present to the next House of Delegates meeting our feelings on this subject.

Dr. Henri R. Hardy commented on the OEO building which will be officially open on 1 May 1972. He feels that everything is progressing well and he is now lining up his staff. A MEDEX from Dartmouth will work with Dr. Hardy at the Clinic.

New Business: Dr. Giustra recommended that Mr. Jefferson Ackor be given a vote of confidence by the Knox County Medical Society as Acting Director of the Penobscot Bay Medical Center. The vote was unanimous.



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Dr. David G. Reed, our new ear, nose, and throat specialist, presented an interesting discussion on the subject of sinusitis. He discussed a number of conditions that were often associated with dental problems. Following this interesting presentation, the meeting was adjourned, there being no further business.

The Knox County Medical Society met on April 4, 1972 at the Sail Loft in Rockport, Maine. Dr. Paul A. Fichtner, our representative to the Maine Medical Association, was our guest from Bath. Mr. Jefferson Ackor and Mr. Shields from the Penobscot Bay Medical Center were also in attendance.

The minutes of the March meeting were read and accepted.

Communications: A letter from Dr. William Strauss thanking us for his association with the Society as Director of Penobscot Bay Medical Center was read.

A letter from the Maine Medical Association announcing the Interim Meeting on April 9, 1972 was read. Drs. Mustafa V. Onat and Robert J. Dreher will be in attendance from the Knox County Medical Society.

Dr. John C. Collins announced his resignation from the Knox County Medical Society. He will return to the practice of pediatrics at Westfield, Massachusetts on April 27, 1972. All of the members of the Society wish John the best of luck in his new practice.

Old Business: Dr. Henry O. White stated that the Grievance Committee has not been elected in the past two years and felt that this should be an active functioning committee. He recommended that the Peer Review Committee take over the responsibilities of the Grievance Committee. He related that Dr. Paul J. Killoran had attended a meeting of the Peer Review Committee on March 30, 1972. Dr. Killoran felt it was the concensus of the Peer Review Committee at the State level that it could accomplish the tasks in which the Grievance Committee was previously involved.

It was moved and seconded that the Peer Review Committee take over the duties of the Grievance Committee. The vote was unanimous.

Dr. White announced the members of the Peer Review Committee as follows: Chairman – Dr. Stuart H. Martin; Members – Drs. Robert C. Britt, Robert H. Eddy, Barbara L. Fuller, Edward K. Morse and Janis Sube.

Dr. White announced the deaths of Dr. John S. Hopping and Dr. Fay K. Alexander and directed the secretary to write letters of condolence to the families.

Dr. Paul Fichtner was introduced and discussed a few problems facing the State Medical Society. He stated that he was a member of a group who traveled to medical schools in Michigan and Georgia to study their methods of training new physicians. He stated that the Medical Society is interested in the developing plans of a new medical school in Maine.

At the recent Executive Committee meeting, Dr. William E. Schumacher from the State Department of Mental Health, again reviewed the admission and care policies of the State mental hospitals. Dr. Fichtner emphasized that if a physician has a patient who he has determined should be admitted to a State mental hospital, the law states that this patient shall be admitted.

He explained that the State Medical Society budget will be increased as the general expenditures have increased.

Dr. Peter E. Giustra presented a memo which will be presented at the Interim Meeting of the House of Delegates in April. This statement concerns the Knox County Medical Society's feelings towards the proposed State medical school. The statement is as follows:

"The Knox County Medical Society fully supports the investigation of a possible medical school for the State of Maine.

"We feel, however, that the research undertaken to date is insufficient to justify the need for such a school.

"With the information we have gained from the last meeting of the House of Delegates in Bangor and from a special session of the Society with Dr. Philip Lape, we wish to inform the House of Delegates that the organizational structure of the proposed medical school is, at present, unacceptable to us."

Following discussion, it was moved and seconded that this statement be presented and the vote was unanimous.

New Business: Dr. White announced the appointment of a new Executive Director of the Penobscot Bay Medical Center. He is Mr. Lee Pridgen who, at present, is the hospital administrator of Augusta General Hospital. Dr. White felt that Mr. Pridgen would be a tremendous asset to the continued development of the Penobscot Bay Medical Center.

Dr. White announced the arrival of a MEDEX from the Dartmouth Training Program. He is Mr. Drew Travers who has received three months of academics and is now here for nine months more of his training period. Dr. Henri R. Hardy will be responsible for Mr. Travers.

Dr. Giustra recommended that the Knox County Medical Society publish a news release once a month in the local papers concerning the various activities in which the physicians are involved. This would include meetings the physicians have attended, hospital appointments of the various physicians, and any new procedures the physicians may be involved with. Dr. Nuesse stated that he discussed this matter with Dr. Daniel Hanley with regard to his views as to whether or not this would be appropriate for the Society to do. Dr. Hanley was very much in favor of this as long as the news release was carefully written and edited. A discussion followed this suggestion. Some doctors were not in favor of this idea and Dr. White suggested that it be discussed more thoroughly by the physicians and brought up again at a future meeting.

Dr. White presented the various committees which will meet with the architects of the Penobscot Bay Medical Center. Dr. White emphasized the importance of these committees to give specific recommendations to the architects so that the physicians' ideas concerning the hospital will be transmitted into a building which will function the way they want it to.

Dr. White recognized the death of Dr. Niles Perkins which occurred one year ago this month, and again stated our great appreciation for the amount of work that Dr. Perkins had done in developing the concepts and the development of the Penobscot Bay Medical Center.

There being no further business, the meeting was adjourned.

WILLIAM E. NUESSE, M.D., *Secretary*

ANDROSCOGGIN

The Androscoggin County Medical Association met at Steckino's Restaurant in Lewiston, Maine on March 16, 1972. The meeting was called to order by the President, Dr. Thomas F. Shields, at 8:30 P.M.

Minutes of the January meeting were read and accepted.

Correspondence was accepted from the Maine Special Olympics Committee in the request for funds to assist in the program planned for June 2-3, 1972. The policy of this body is to not financially participate but to recommend individual financial participation by members of the Androscoggin County Medical Association. The membership was advised of the merit of this organization and the recommendation for individual participation was made by the President.

A letter from the Maine Division of the American Cancer Society requesting approval of this body for a Pap Clinic in Lewiston-Auburn, April 8, 1972 was read. Following much discussion, including that by the President of the Maine Cancer Society, Dr. Stanley E. Herrick, Jr., a qualified approval was advised. The qualification is on the basis that many women feel that this is the only examination that they require and that the Pap Smear suffices for a complete physical examination. It was also pointed out that the feed back on positive-negative results from this type examination was exceedingly poor last year. Members of the Society have already volunteered their services for the current Pap Clinic.

A letter was read from Bird Engineering Research Association, Inc., Vienna, Virginia. This organization is under contract with the Department of Health and Welfare to analyse data for

the Secretary's Commission on Medicare Malpractice. A copy of the Androscoggin County Joint Medical-Legal Plan for screening alleged medical malpractice cases will be forwarded to Bird Engineering Research Association, Inc.

The applications for membership in this Society by Drs. Venkat R. Dundaram, J. Wayne Tyler, Patricia A. Adams and Victor M. Parisien have been approved by the credentials committee. It was moved, seconded and voted to accept these physicians into the Androscoggin County Medical Association.

Under new business, the Delegates of the Androscoggin County Medical Association were instructed, following a heated and enlightening discussion, to present the following resolutions to the House of Delegates meeting, April 9, 1972.

1. Equal appraisal of the value of a conventional Medical School for Maine, not limiting exploration to an innovative "Medical School without walls," only.

2. Adoption of the same Utilization Review and Peer Review practice in the Veterans Administration Hospitals as is enforced in the Community Hospitals throughout the State of Maine. The current double standard is not acceptable to the physicians of this County.

3. Hospital-based Utilization Review Committees, i.e., private practitioners of medicine should not provide U/R services to the private insurance industry as is required by law for recipients of public funds. Review of the fee for service contract between a policy holder and his insurance company is not the province of the members of the Androscoggin County Medical Association.

The membership discussed endorsement of continued participation in Diabetes Week. After a lengthy discussion of the pros and cons, a qualified approval was endorsed by the Society.

Gilbert E. Marcotte, M.D., Director, Bureau of Medical Care, Department of Health and Welfare was the intended guest speaker for the evening. Quite unexpectedly he was unable to attend. The Society greatly regretted Dr. Marcotte's absence; however, a great deal of important business was conducted by the membership.

RICHARD M. SWENGEL, M.D., *Secretary*

KENNEBEC

The Kennebec County Medical Association met at the Holiday Inn in Augusta, Maine on Thursday, March 16, 1972. The Association's Peer Review Committee was also in session prior to the regular monthly meeting. After the social hour and dinner, the business meeting was opened by Vice-President Richard R. Dole, M.D. The minutes of the last meeting were read and accepted. Dr. Richard T. Chamberlin then gave a report of current progress made by the County Peer Review Committee and of counsel given by the State Peer Review organization. The latter information definitely indicates that County Peer Review includes questions pertaining to fees as well as quality of medical care.

Dr. Warren V. Kindig of Augusta was unanimously elected to full membership.

The evening's scientific program was given by Dr. W. Page Clason, Director of the Critical Care Unit at the Eastern Maine Medical Center. Dr. Clason discussed "Concepts of Critical Care Medicine," and included a review of pioneering efforts within the State to develop life support teams suitable for small community hospitals. His presentation also listed suggestions for what life support parameters should be followed in intensive care units and stressed that physicians need to think in terms of changing measurements. Dr. Clason pointed out that how a patient gets to a certain set of laboratory measurements must be known to intelligently evaluate a given set of test results. A set of standing orders for each life support system or critical care unit is essential for the guidance of the highly trained people caring for the critically ill.

The meeting was adjourned by Dr. Dole at 9:30 p.m.

FRANCIS A. SPELLMAN, M.D., *Secretary*



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Letters to the Editor

To the Editor:

The purpose of this letter is to inform you of steps the Veterans Administration has taken to improve the delivery of health services to our Maine veterans and to reacquaint you with the basic eligibility requirements for such care.

As you may know, the Togus VA Hospital has 823 beds; 519 psychiatric beds, 204 medical beds, and 100 surgical beds. The highest priority for admission goes to the veteran who requires hospital treatment for a service-connected disability; that is, a disability which has been determined to have been incurred in or aggravated by his period of military service. The second highest priority goes to the service-connected veteran who requires hospital treatment for a disability not related to his military service. Please note that in both of these categories the veteran's financial resources play absolutely no part in determining eligibility. The third priority goes to the veteran who does not have a service-connected disability but who requires hospital treatment. Treatment is offered this veteran on a bed available basis. Additionally, if he is under age 65, he must be unable to defray the cost of private hospitalization.

Togus is capable of providing appropriate hospital care and attention for the vast majority of medical, surgical, and psychiatric disabilities. As with most hospitals, there are some exceptions such as open heart surgery, and organ transplants.

Effective March 15 this year the Administrator of Veterans Affairs announced the formation of VA Medical District I which makes a cohesive unit of the VA hospitals at Togus; Manchester, New Hampshire; White River Junction, Vermont; Providence, Rhode Island; Boston, West Roxbury, Bedford, and Brockton, Massachusetts; and the Outpatient Clinic at Boston. This has been termed "Regionalization," and enables each hospital in the District to utilize the services and share in the resources, medically and administratively, of the other hospitals. Admission to the Togus Hospital, for instance, is in effect admission to the entire District with all the resources of the District available to the admitted veteran. Thus, the highly specialized cardiac surgery or specialized paraplegic care available at the West Roxbury VA Hospital is equally available to the veteran admitted to Togus. Transfer will be effected, when needed, by Togus without any necessity for discharge and readmission. The same, of course, is true of the special medical resources available at the Boston VA Hospital and at all the other hospitals in the District.

In the medical and surgical services at Togus, we have some facilities for female veterans. At the moment, we do not have a female psychiatric service, but hope to soon. In the meantime, we can arrange for female psychiatric hospitalization at one of the psychiatric hospitals in our Medical District, such as Brockton or Bedford.

We have tried to keep this explanation as brief as possible and in so doing we, no doubt, have failed to answer many questions you may have. If this is so, please do not hesitate to write or call me, our Chief, Outpatient Service (tel. 623-8411, ext. 252), or our Chief, Medical Administration Division (tel. 623-8411, ext. 238).

JOHN J. JACKSON
Center Director
Veterans Administration Center
Togus, Maine 04330

To the Editor:

I am editing a book on the role of faith or religion in healing from a physician's standpoint. Any physician interested in contributing to this book, please write to the following address:

CLAUDE A. FRAZIER, M.D.
4-C Doctors Park
Asheville, N. C. 28801

DEPARTMENT OF HEALTH AND WELFARE

Continued from Page 128

figures indicate that the availability of experienced industrial physicians, and nurses, is small compared to the population. Likewise, since an occupational disease reporting law is present, the scanty occupational disease reporting available reflects a serious lack of monitoring of effects of hazardous working conditions on employees.

"Exposures to continuous noise appears to be the most prevalent hazard, with 7,000 employees exposed to noise levels which are marginally or inadequately controlled.

"As projected to the entire universe of approximately 124,000 employees, it is estimated that there are 63,000 exposures to potentially harmful chemical or physical agents. While many of these appear, on a walk-thru survey, to be controlled, it is estimated that over 28,000 are inadequately or marginally controlled and should be investigated. Only through repeated surveys is it possible to know if exposures are being controlled or hazardous conditions are being eliminated. This necessitates a program of routine periodic reinspection, especially where definite hazards may exist, or new ones occur."

As a result of the passage of OSHA and the findings of the joint survey, the Department is presently expanding its staff, laboratory and field capabilities in the areas of work place and employee monitoring.

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The Journal
of the
Maine Medical Association

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Conservation in Head and Neck Surgery

Howard A. Tobin, M.D.*

The incidence of head and neck cancers is continually increasing.[1] Coupled with this general increase is an even more discouraging increase in the incidence of head and neck lesions in women. This appears to be related to women taking up the habit of smoking during the past 20 to 30 years. These women are now reaching their 50s and 60s; an age where head and neck cancer usually shows itself.

Emphasis has been placed upon educating the family physician to recognize head and neck cancer in its early forms. Appreciation of the ominous significance of a lump in the neck in an adult has been stressed on numerous occasions.[2] Education has also been directed towards dentists who are frequently in a position to recognize oral carcinoma in the early stages. Nevertheless, there remains a reluctance on the part of the family physician to come to grips with many head and neck cancers. One of the reasons for this reluctance is the fact that they associate treatment of head and neck cancers with mutilating surgical procedures. They feel that the patient with a carcinoma of the larynx will never speak again and, therefore, will be unable to communicate with his friends and family. They envision the so-called "Andy Gump" appearance of the patient with a carcinoma of the oral cavity or mandible. They hear in their mind's ear a garbled, unintelligible speech in the patient with a carcinoma at the base of the tongue or the tonsil. They wonder whether the patient with a carcinoma of the pharyngeal wall will ever feed himself again, or whether he will be forced to subsist on tube feedings with saliva constantly draining from his neck.

It is the purpose of this discussion to emphasize recent trends in head and neck surgery which embody preservation or restoration of function without sacrificing cure rates. Several factors have played a part in this trend. Included are: 1. Newer surgical procedures such as supraglottic or hemilaryngectomy (partial laryngeal resections which preserve laryngeal function). 2. Careful application of established conservation surgical techniques, such as increased use of marginal or segmental mandibulectomy in the place of subtotal mandibulectomy. 3. Broader application of reconstructive techniques. This includes not only surgical reconstruction, but also reconstruction utilizing prostheses; for example, palatal prostheses for improved speech and prostheses for replacement of external appendages such as ears or noses when they must be sacrificed.

Many of the newer surgical techniques are difficult to carry out and also require a good deal of long-range postoperative care. Considerable effort is required not only on the part of the surgeon, but more importantly, on the part of the patient who should be motivated sufficiently to cope with his convalescence. Outside help will often be required from many directions; the maxillofacial prosthodontist, the speech therapist, the physical therapist; the inhalation therapist – these are only a few examples of the many people who make up the team needed in the treatment of these particular patients.

Frequent surgical procedures may place a considerable burden on the patient's time and finances when reconstructive surgery is required. Fortunately, however, most of the reconstruction can be performed at the time of resection of the lesion. The increased use of regional flaps as opposed to flaps migrated from great distances has made this possible.

Conservation Surgery of the Larynx

One of the most exciting advances in head and neck surgery has been the development of conservation techniques in surgery of the larynx. It is an extremely rewarding situation, both for the surgeon and the patient, to be able to adequately resect a tumor of the larynx and preserve the functions of speech and swallowing. Nowhere is precise surgical judgement more important. A milli-

*Instructor Division of Head and Neck Surgery, Department of Otolaryngology & Maxillofacial Surgery, University of Cincinnati Medical Center, Cincinnati, Ohio.
Will be entering practice in Portland, Maine, July 1972.

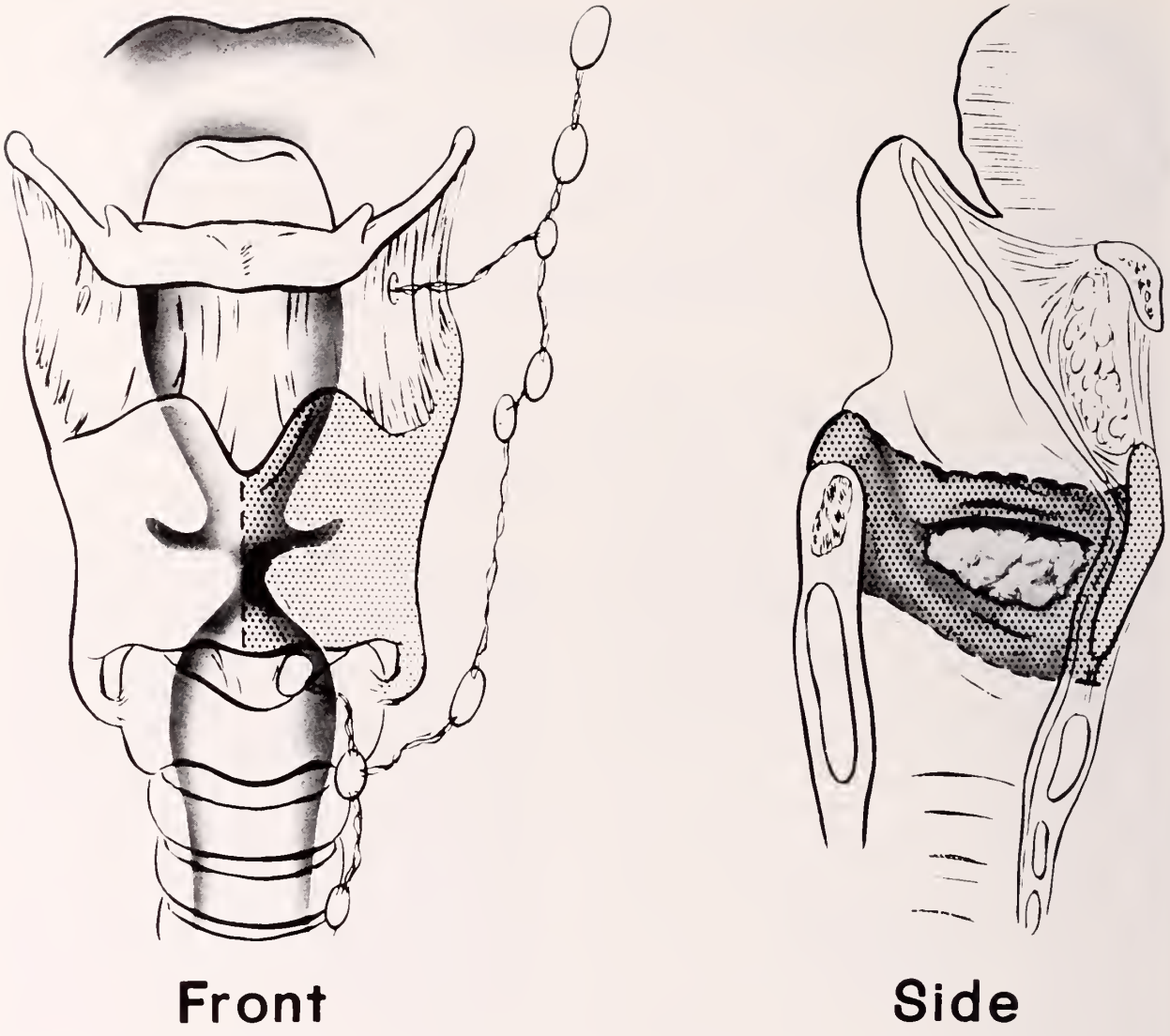


Fig. 1. Vertical partial laryngectomy (hemilaryngectomy). The entire left side of the thyroid cartilage has been outlined for removal, although the posterior rim can be preserved. The adjoining soft tissue including the entire true and false cords, and including a variable portion of the arytenoid cartilage can be resected and the wound closed primarily.

meter may make the difference between a lesion suitable for conservation surgery and one which requires total laryngectomy.

In its simplest form, two types of conservation procedures are feasible for laryngeal lesions. One is a vertical partial laryngectomy in which one side of the larynx is removed taking one vocal cord and one arytenoid cartilage along with whatever surrounding tissue is necessary (Fig. 1). This operation finds its application in patients who have a carcinoma which limits itself to one true vocal cord. In some cases, a slight amount of extension across the anterior commissure to the opposite vocal cord or slight extension above or below the vocal cord still will allow a vertical partial laryngectomy. Occasionally, this procedure may be applied to patients who have had previous radiation therapy. In general, however, the wound healing problems associated with previous Cobalt therapy make this procedure somewhat tenuous in the irradiated patient.

Cure rates for hemilaryngectomy are excellent when the procedure is properly applied. What is more, with close follow-up, recurrences can be rapidly detected and the patient remains a candidate for further treatment whether it be radiation therapy or further surgical excision. The survival rate at the University of Cincinnati Medical Center is currently 96 percent for patients with laryngeal lesions treated by hemilaryngectomy.[6]

The second type of partial laryngectomy which is finding increased application is called supraglottic laryngectomy. Originally described by Alonso,[3] this operation consists of the removal of the upper-half of the larynx preserving the true vocal cords, but taking all the struc-

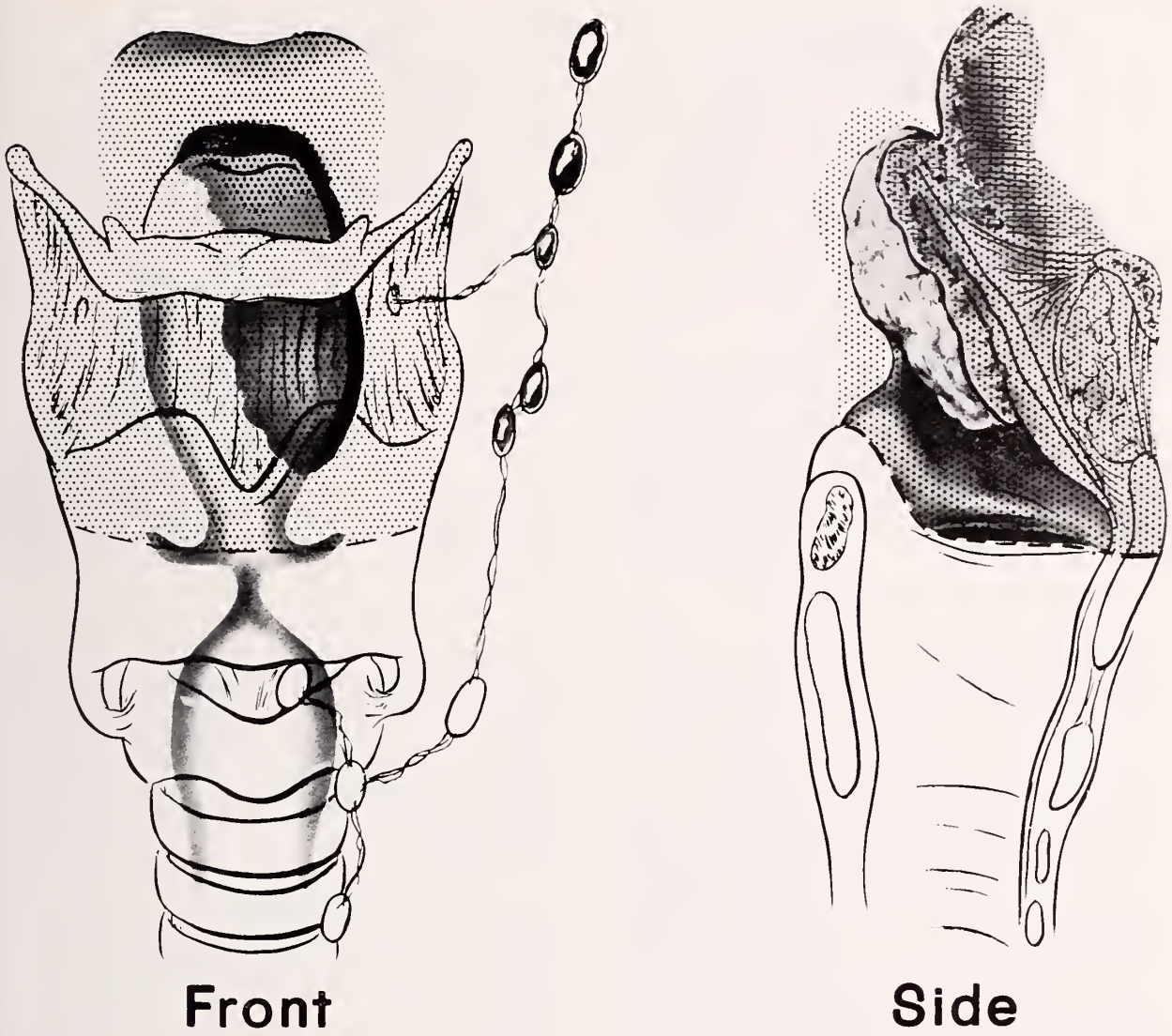


Fig. 2. Horizontal partial laryngectomy (supraglottic laryngectomy). A tumor of the epiglottis is depicted here which is an excellent lesion for this procedure. The stippled area again demonstrates the portion of the larynx that can be resected with preservation of function and primary closure.

tures above including the false vocal cords, the aryepiglottic folds, and the epiglottis (Fig. 2). As originally described, this was a two-staged procedure which required the temporary creation of a pharyngostome. More recently, Ogura has demonstrated that this procedure can be carried out as a one-stage surgical resection.[4] This operation is applicable to tumors of the epiglottis, the aryepiglottic folds, and the ventricular bands. In some instances, it can be extended to include lesions of the base of the tongue which formerly were treated by total glossectomy and laryngectomy. Occasionally, it can also be used for tumors of the pyriform sinus. In these cases also, a total laryngectomy would otherwise be required. In properly selected cases, cure rates with supraglottic laryngectomy are as good as those obtained with more radical resection.[5] While the voice is hoarse following hemilaryngectomy, speech is near normal after supraglottic laryngectomy because of the preservation of the true vocal cords.

Swallowing is another consideration, however, and these patients must be taught to swallow without aspirating. With patience, this can usually be learned within a few weeks with no great difficulty.

Contraindications to the supraglottic laryngectomy include tumors too extensive to be encompassed by the procedure, and patients whose poor general health or poor pulmonary reserve will not allow the procedure. Some aspiration must be expected in the early postoperative periods. Patients with adequate pulmonary function tolerate this with no adverse sequelae, however.

We have recently had some experience combining the supraglottic and the hemilaryngectomy for more exten-

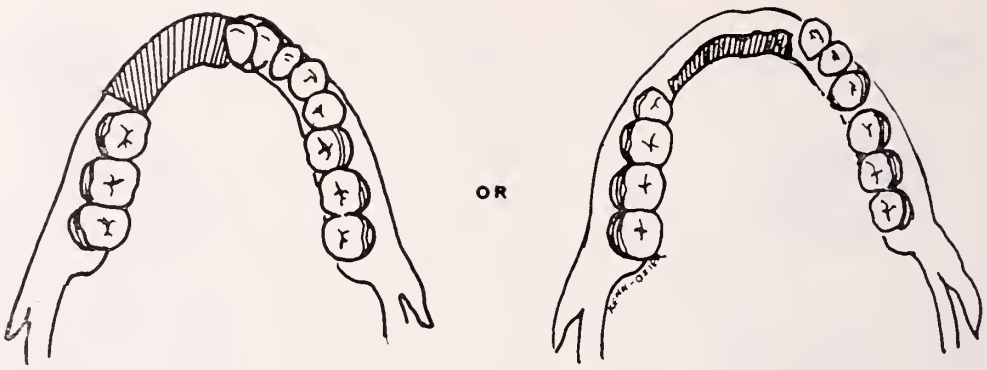


Fig. 3. Marginal resection of the mandible. Left: an upper horizontal resection (one could instead resect the lower border). Right: the inner table has been resected (one could instead resect the outer table).

sive laryngeal lesions. So far, results have been encouraging. However, patient selection becomes even more important with this procedure.

Partial Mandibular Resection

It is easy to recall during the early part of surgical training being shown a patient who had been treated by a total mandibulectomy. The surgeon, quite proud of his apparent cure, would seem somewhat oblivious to the extent of deformity inflicted upon the patient. The resident, on the other hand, could only see the problems faced by this patient eating and appearing in public. As time passed and his training progressed, he too could face these problems with equanimity and could also feel proud of the better results in spite of quite massive deformities. More recently, however, we have begun to look with broader perspective at the problems faced by the patient with head and neck cancer. Cure no longer takes a back seat to functional restoration. The concept of mandibular resection is quite pertinent in this regard.

Marginal resection of a mandible for lesions of the anterior floor of the mouth, gums, and buccal sulcus was popularized by Hayes-Martin.[7] It later became accepted, however, that when a lesion approached the mandible, all proximal bone would be resected. Furthermore, large sections of mandible were often removed simply because the surgeon knew of no other way to close the wound. This often resulted in markedly deforming procedures.

It appears that many problems formerly associated with partial mandibular resection were not the result of preserving a portion of the mandibular arch, but rather a result of inadequate exposure and resection of the tumor itself. We now find that in many cases the arch of the mandible can be preserved with adequate tumor removal (Fig. 3). When necessary, the mandible can be split, allowing excellent exposure of the floor of the mouth or the base of the tongue, and then be reunited at the termination of the procedure. Large defects of the tongue or floor of the mouth can often be immediately reconstructed using regional flaps, such as the forehead flap or deltopectoral flap. When segmental resection of the mandible is necessary, reconstruction can often be accomplished with rib grafts or grafts of the iliac crest. Recently, experimentation has been carried out utilizing clavicle enclosed with a pedicle of skin as a composite graft for resected mandible.

Pharyngeal Reconstruction

A laryngo-pharyngectomy (or removal of the entire larynx and pharynx) remains a challenge to the head and neck surgeon. Not only does the patient lose the ability to speak normally, but he also loses the ability to swallow. Many forms of reconstruction have been attempted for these patients. Some of the methods tried with varying amounts of success are skin grafts, transplanted colon or jejunum, and delayed-flap reconstruction. Currently, increased emphasis has been placed on immediate reconstruction utilizing regional flaps. The delto-pectoral flap, popularized by Bakamjian,[8] has probably been the most popular of the recent techniques utilized (Fig. 4). A medially-based skin flap extending laterally onto the shoulder is elevated and formed into a long tube with the skin side inward. During the primary stage, the tube is anastamosed superiorly to the oropharynx and base of the tongue and inferiorly to the esophagus. The tube is buried beneath the cervical skin flaps. Several weeks later, the base of the flap can be resected, resulting in an intact tract from the oral cavity to the esophagus.

Prosthetic Reconstruction

One final aspect of conservation in head and neck surgery is related not to the surgical procedure, but rather to the use of the maxillofacial prosthodontist in the rehabilitation of the head and neck patient. In patients who have had resection of portions of the soft palate, no amount of reconstructive surgery will restore the patient's normal voice as well as a carefully constructed soft palate obturator. When it becomes necessary to resect an ear, no amount of reconstructive surgery will reproduce an ear quite so natural as the one that can be fashioned by the prosthodontist. For both cosmesis and function, the creation of a suitable prosthesis is often superior to the results of surgical reconstruction presently attainable. Not only is it less traumatic to the patient who has

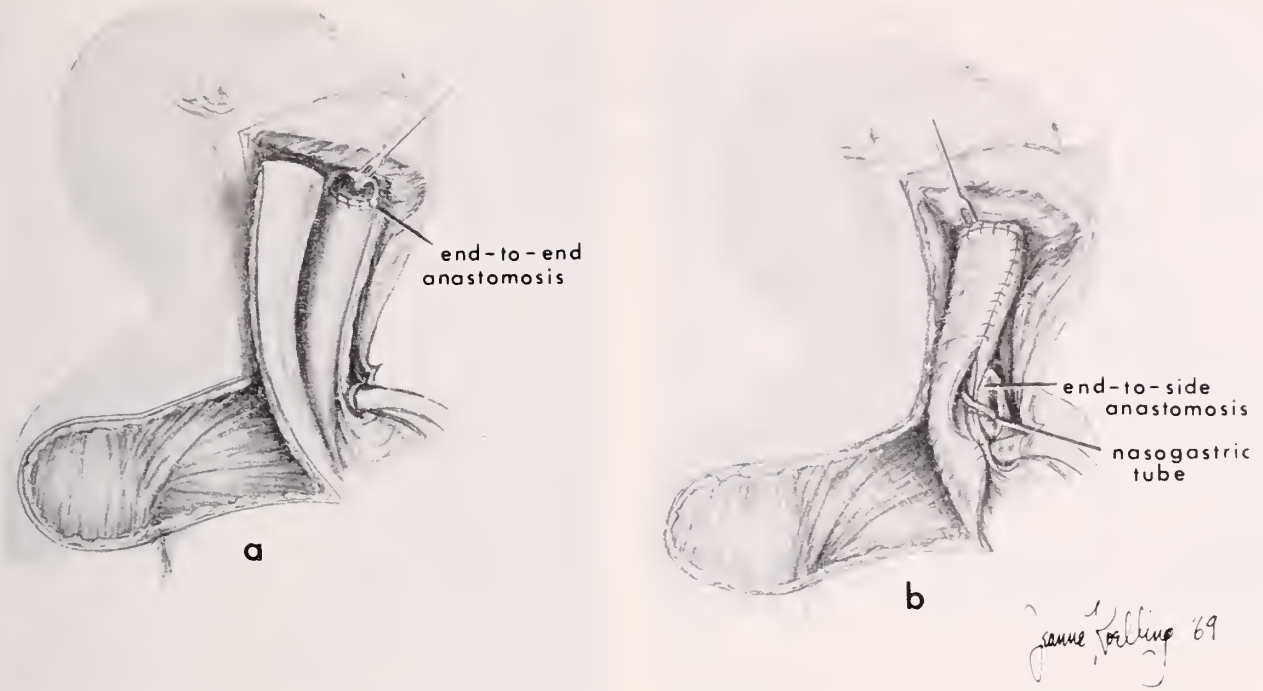


Fig. 4. Delto-pectoral flap. a) The flap has been elevated off the chest and shoulder, and is based upon the perforating branches of the internal mammary artery. It is being anastomosed superiorly in the hypopharynx. b) the superior anastomosis has been completed. An end-to-side anastomosis with the esophagus has been started.

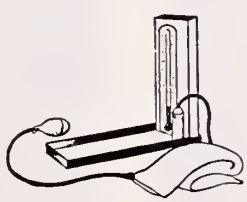
often undergone an extensive surgical procedure already, but in many cases as pointed out above, the results are more satisfactory.

Summary

A few of the advances in head and neck surgery which have improved the functional preservation and rehabilitation of the head and neck cancer patient have been discussed. It is apparent that in the near future there will be no miraculous breakthroughs in the surgical treatment of the head and neck patient. Progress in reconstruction, however, now permits whatever surgical resection is truly necessary to completely encompass the lesion. Reconstruction techniques allow rehabilitation to the point where the patient will be able to return to a useful place in society. It is no longer adequate to concern oneself only with the ability to resect a tumor hoping that someone else at some later date will attempt to reconstruct the patient. We must now consider right from the outset conservation and reconstruction as a total part of the treatment of the head and neck patient.

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A Clinical, Radiologic, and Physiologic Evaluation of Chest Physiotherapy*

George P. Lord, M.D., Clement A. Hiebert, M.D. and Dorothy T. Francis, R.P.T.

Introduction

Chest physiotherapy is currently enjoying widespread use in university and community hospitals. Is chest physiotherapy worth the time, effort, and expense? This study is designed to answer that question and is divided into three parts: a clinical evaluation of patients following thoraco-abdominal surgery with and without the benefit of chest physiotherapy, a review of radiological changes in patients with atelectasis or lobar pneumonia, and an evaluation of changes in arterial oxygen tension in the recovery room.

Our European colleagues have long been aware of the benefits of chest physiotherapy.[1–7] In this day of antibiotics, is it still worthwhile to thump the chest? Palmer, Sellick and King[8,9] demonstrated that severe pulmonary complications following surgery were responsible for significant postoperative morbidity. The present study is an extension of their work adding radiographic and physiologic support to the idea that chest physiotherapy is an essential part of postoperative management.

Technique

Chest physiotherapy is a technique developed in Europe which essentially clears the airways and lung parenchyma by percussion and positioning. In Figure 1, the chest physiotherapist is percussing the chest over the posterior segment of the left lower lobe. The bed is jacked up to position the appropriate bronchus for drainage. Percussion is carried out in a thumping fashion with the hands cupped. Following this, the patient is left in the position for a minute or two and encouraged to cough until secretions are raised. The other positions and techniques in chest physiotherapy are well described in the literature.[10]

Methods and Results

The results of this study will be presented in three sections: (1) Radiographs of patients with chest lesions before and after chest physiotherapy, (2) a review of the clinical progress of patients following thoraco-abdominal surgery with and without the benefit of chest physiotherapy, and (3) an assessment of arterial oxygen tension changes in recovery room patients with and without treatment with chest physiotherapy.

*This study was supported in part by a grant from the Maine Tuberculosis and Health Association. Both Dr. Lord and Dr. Hiebert are attending physicians at the Maine Medical Center and members of the clinical faculty of Tufts University School of Medicine. Mrs. Francis was trained in England and is currently an instructor in physiotherapy at the University of Vermont School of Medicine.



Fig. 1. Chest physiotherapy in a patient with a posterior segment left lower lobe pneumonia. The patient is positioned in the head-down direction, and cupping and percussion are carried out over the infected lobe. Often striking results in clearing of pulmonary infiltrates can be obtained by this relatively simple maneuver.

Section 1: Radiographic Studies

A 22-month-old infant was admitted with aspiration pneumonia from a tracheo-esophageal fistula. At the time of admission, she was acutely ill with fever. A chest radiograph showed virtual opacification of the right hemithorax (Figure 2 – left-hand panel). Chest physiotherapy was begun and a radiograph was taken five minutes after completion of therapy (Figure 2 – right-hand panel). Copious secretions were coughed up by the patient. The right lung cleared dramatically.

A 22-year-old man was admitted with clinical and radiologic evidence of right middle lobe pneumonia. He was treated with antibiotics, fluid replacement, and bed rest. Ten days after admission his radiograph still showed atelectasis of the right middle lobe (Figure 3 – left-hand panel). Chest physiotherapy was begun. Within forty-eight hours, his temperature fell to normal. A chest radiograph demonstrated clearing of the atelectasis. (Figure 3 – right-hand panel).

Chronic radiographic densities frequently follow acute pneumonia. Institution of chest physiotherapy frequently is associated with clearing of these infiltrates. In this patient, bronchoscopy failed to demonstrate an intrabronchial obstruction.

A 30-year-old man was admitted with acute gastrointestinal bleeding from a duodenal ulcer. He failed to do well on a medical regimen. A partial gastrectomy was

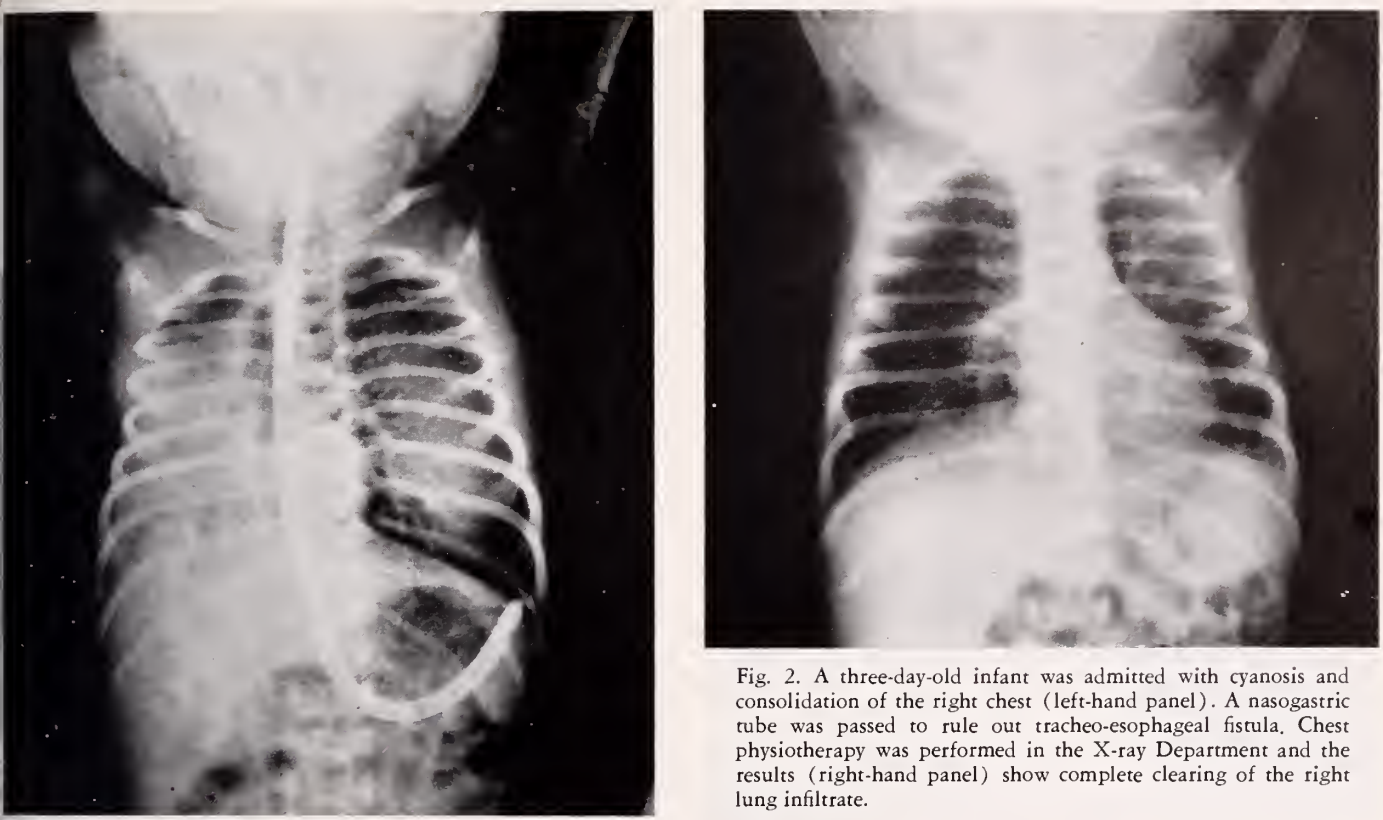


Fig. 2. A three-day-old infant was admitted with cyanosis and consolidation of the right chest (left-hand panel). A nasogastric tube was passed to rule out tracheo-esophageal fistula. Chest physiotherapy was performed in the X-ray Department and the results (right-hand panel) show complete clearing of the right lung infiltrate.

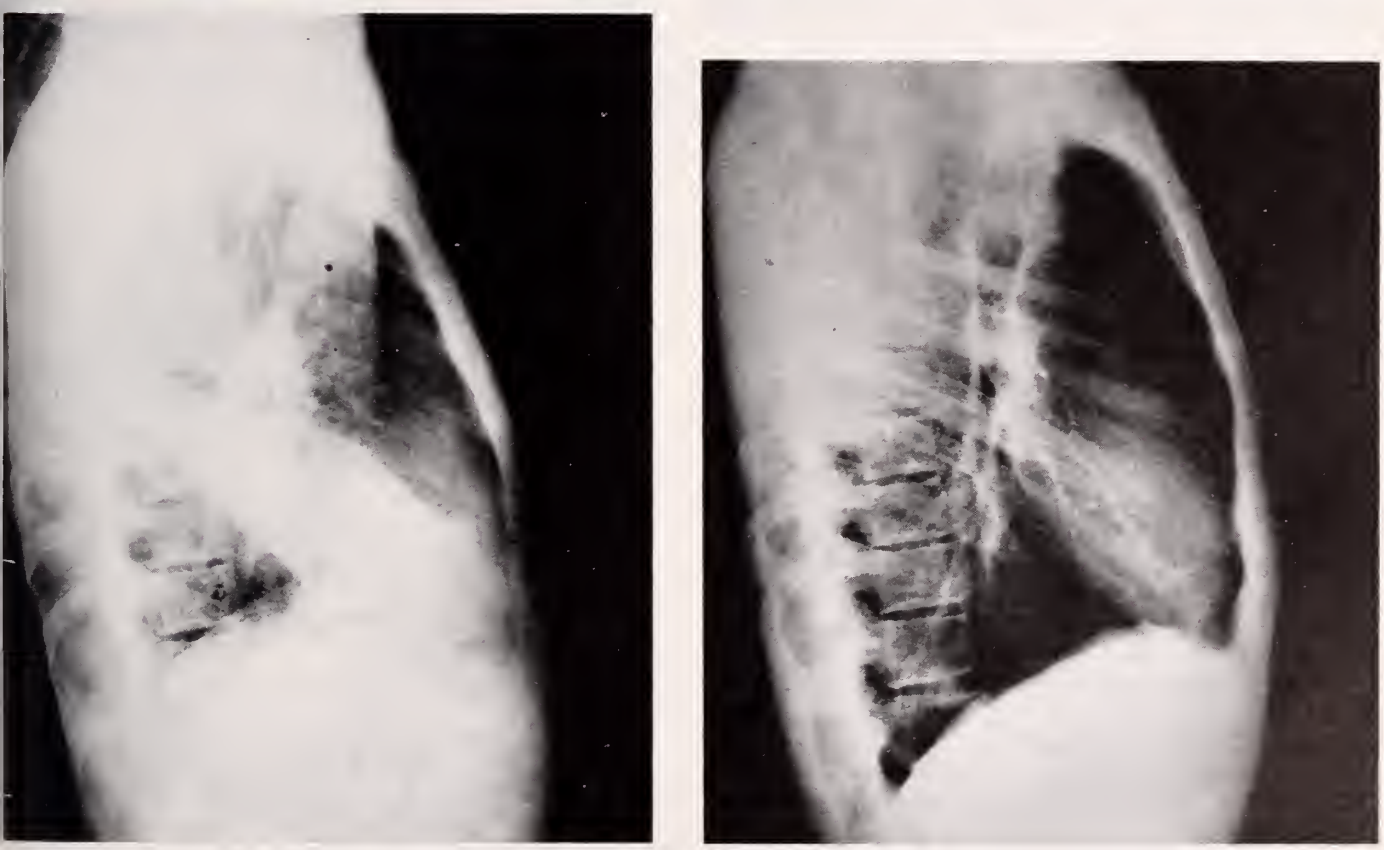


Fig. 3. A 22-year-old man was admitted with clinical and x-ray evidence of right middle lobe pneumonia. Antibiotics were administered and although his cough subsided, his chest x-ray remained abnormal (left-hand panel). Chest physiotherapy was performed over the right middle lobe and within one week the infiltrate had cleared (right-hand panel).

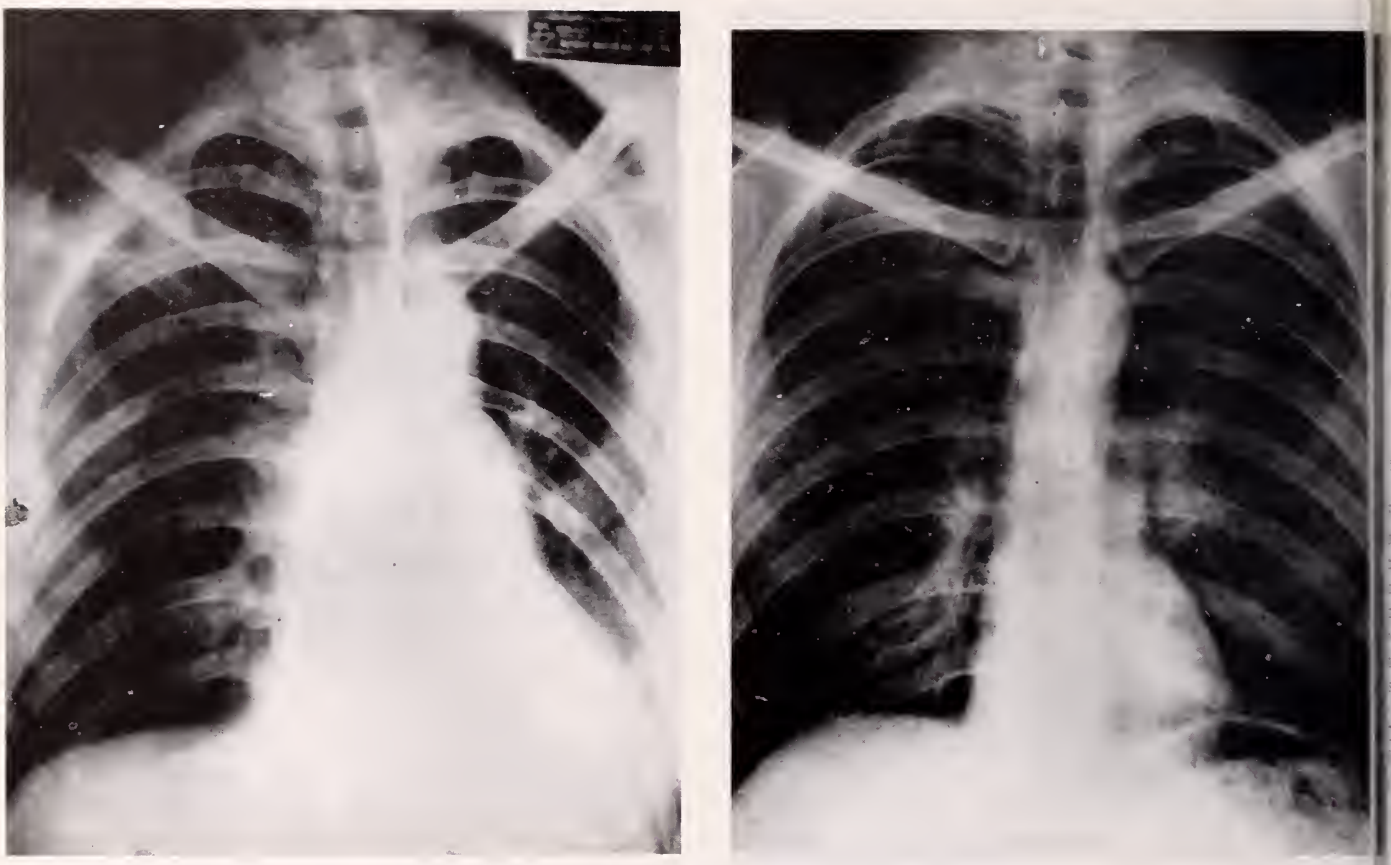


Fig. 4. A 30-year-old man was admitted with upper gastrointestinal bleeding from a peptic ulcer. One day after antrectomy and vagectomy his temperature was 105 and his left lower lobe collapsed (left-hand panel). Chest physiotherapy was performed on two occasions and after one day his chest x-ray cleared (right-hand panel).

performed. On the fifth postoperative day, he was tachypneic, cyanotic, and febrile. Chest radiograph (Figure 4 – left-hand panel) indicated collapse of the medial and posterior basal segments of the right lower lobe. Chest physiotherapy was performed four times a day. Within two days, the atelectasis had cleared (Figure 4 – right-hand panel).

Section 2: Clinical Observations

Chest physiotherapy reduces postoperative complications in patients following thoraco-abdominal surgery (Table 1). In this portion of the study, patients were divided into a treated and untreated group and studied throughout their hospital course. If the patient's temperature rose above 102°F or he developed other evidence of pneumonia such as pulmonary infiltration by chest X-ray or clinical toxicity, he was treated with antibiotics and all measures except chest physiotherapy.

The data indicate that patients not receiving chest physiotherapy had stormier postoperative courses than did treated patients. This was particularly so in patients having lower abdominal surgery in which the number of complications was three times greater in the untreated patients.

TABLE 1

EFFECT OF CHEST PHYSIOTHERAPY ON RESPIRATORY COMPLICATIONS FOLLOWING SURGERY

	TREATED		*UNTREATED*	
	No. of Patients	*Complications**	*No. of Patients*	*Complications**
Thoracic	32	7	32	16
Cardiac	22	7	10	5
Abdominal				
Upper	70	21	63	17
Lower	11	3	17	9

*Fever 102°F with cough and sputum from day 1-6 and/or segmental/lobar atelectasis or pneumonia.

Section 3: Physiologic Data

To assess the effects of physiotherapy on ventilation and perfusion within the lung, the arterial oxygen tension was studied in patients in the recovery room following cholecystectomy. As before, the patients were divided into a treated and untreated group. Arterial blood samples were drawn from the brachial artery at regular intervals during a five-hour period following their arrival in the recovery room. All patients were free of preexisting lung disease.

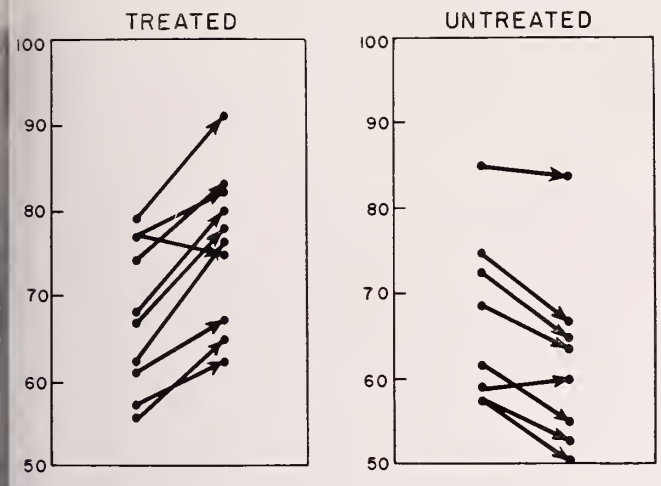


Fig. 5. (left-hand panel) : On the ordinate is shown the arterial oxygen tension in mm. Hg. The pointed arrows indicate the rise in arterial oxygen tension in a group of patients before physiotherapy (at the base of the arrows) and following physiotherapy (at the tip of the arrows). In the right-hand panel, patients not receiving chest physiotherapy. Arterial oxygen tension rises with chest physiotherapy but falls when chest physiotherapy is not performed.

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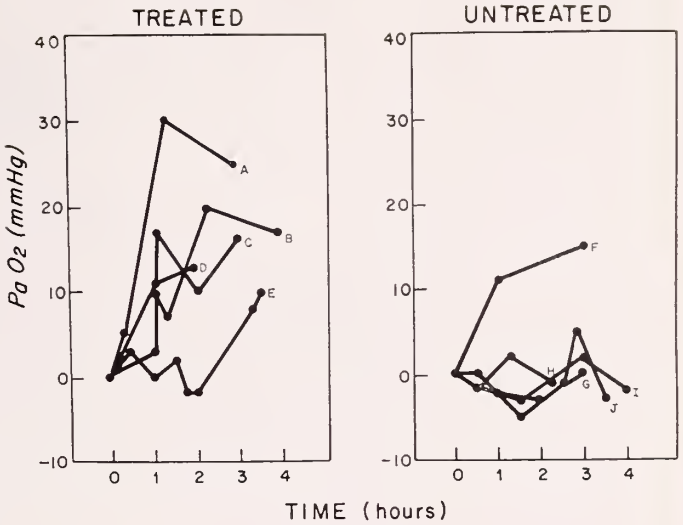


Fig. 6. Changes in arterial oxygen tension four hours after chest physiotherapy in a group of operative patients. The arterial oxygen tension is shown in mm. Hg. on the ordinate.

(Left-hand panel) The arterial oxygen tension rises in patients treated with chest physiotherapy. The elevation is sustained and significant. (Right-hand panel) The oxygen tension remains unchanged for four hours in the Recovery Room following cholecystectomy without the benefit of chest physiotherapy.

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Arterial oxygen tension rises abruptly following chest physiotherapy (Figure 5 – left-hand panel). It does not rise appreciably in untreated patients (Figure 5 – right-hand panel). The elevation in arterial oxygen tension is significant and sustained (Figure 6 – right-hand panel). By contrast, untreated patients usually have no rise in arterial oxygen tension (Figure 6 – left-hand panel).

Discussion

The present study was designed to answer the question: Is chest physiotherapy worth the time, effort and expense? The results suggest that it is. Chest physiotherapy clears atelectasis, resolves radiographic evidence of consolidation, reduces morbidity following thoraco-abdominal surgery, and causes a significant and sustained rise in arterial oxygen tension in postoperative patients.

To be completely effective, chest physiotherapy requires attention to detail. Positioning the patient to get optimal tracheobronchial drainage is essential. Chest physiotherapy is an obnoxious job dealing with sputum and patients in pain. Not all physiotherapists are attracted to this mode of therapy.

Preoperatively the patient should be instructed how to breathe deeply, cough and huff. He should be familiar with the techniques to be applied after operation and he should be reassured that the therapist will not hurt him following surgery. It is helpful if the physiotherapist uses a stethoscope in order to apply percussion to those areas where air entry is poor or rales are present.

There are several criticisms of this study: In the first section only anecdotal cases are shown. Yet, the radiographic changes were so dramatic we felt them worthy of reproduction. In the second section, the sample size is small. Still we felt we could not withhold chest physiotherapy from any more "control patients." In the third section of the study, the arterial oxygen tension does rise after chest physiotherapy but one might ask why. Perhaps the patient is awakened by banging on the chest and he breathes more deeply. Perhaps his oxygen tension rises because he is rolled on his side as positional changes will affect oxygen diffusion through the lung. Whatever the reason, the data support the contention that chest physiotherapy affects a significant rise in arterial oxygen tension.

Much can be said in support of chest physiotherapy for the community hospital. There is no question in our minds from the data presented here, and from a decade of observation of the effects of chest physiotherapy, that it is a valuable addition to patient care.

Synopsis Abstract

There is little objective evidence to support chest physiotherapy as an important procedure. Clinical course, chest radiographs, and arterial oxygen tensions were assessed in selected patients following thoraco-abdominal surgery. The results demonstrate that chest physiotherapy clears radiographic evidence of atelectasis, reduces postoperative morbidity, and causes significant and sustained increase in arterial oxygen tension.

Continued on Page 150

Lithium Carbonate

Dosage, Serum Levels and Toxicity

James C. Wren, M.D.*

Introduction

Lithium carbonate was first used at this Center in April of 1970. Just by chance our first research use coincided with the release of the drug by the Food and Drug Administration (FDA) for use in the manic phase of manic depressive disorder. The story leading to this very specifically limited approval is well known.[1] This use continues to be the only FDA-approved use of the drug. All other use is research.

The literature is voluminous on the subject of lithium. Most reports favor its use in manic disorders but controversy continues about certain aspects of lithium treatment. There appears to be little doubt that the drug is an effective anti-manic agent but there is some question as to whether or not it is the best agent. A collaborative study by the VA and NIMH concluded that chlorpromazine was superior to lithium in the highly active manic patient while lithium appeared to be the better treatment in the mildly active patient.[2] Schou[3] contends that the best treatment for the highly active patient is a combination of the two drugs. We have followed this idea in our small series. One great problem with this plan is the obvious difficulty in judging the significance of drug side effects if they should occur.

The prophylactic use of lithium is an entirely different matter. There are many who believe that long-term prophylactic use of lithium will eventually prove to be its most valuable and important use. In general, there are two types of prophylactic use. The first is the long-term use of a maintenance dose of lithium in a manic disorder which has been controlled first with either lithium, chlorpromazine, or a combination of the two. The second type involves the establishment of a prophylactic dose in a patient not diagnosed manic depressive disorder and continuing the drug on a long-term basis. It must be emphasized that this type is strictly a research procedure. There are numerous studies of this type – for example, the use of lithium as a possible prophylactic agent in recurrent depression.

At this Center, 72 patients have been treated with lithium in the past two years – 53 research and 19 clinical. In this communication, we will consider three aspects of lithium therapy. These are (1) dosage, (2) serum levels, and (3) toxicity. Since dosage and serum levels are totally dependent on each other, they will be discussed together. Toxicity, while closely related to dose and serum levels is not always dependent on them.

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Dosage and Serum Levels

The dose of lithium carbonate depends largely on what the physician is trying to accomplish. If one's purpose is to control or help control a manic episode, the dose is suitably high. On the other hand, the establishment of a prophylactic dose for any reason requires a much smaller amount. Obviously, in the management of manic patients, the former merges into the latter as the manic phase subsides. The manufacturer's prescribing information suggests an average therapeutic dose of 1800 mg daily for manic patients. The prophylactic dose suggested is 900 mg daily.[4] Our experience has suggested a somewhat higher dose schedule.

Probably the most important point to be made regarding serum lithium levels is that *no lithium therapy* can be done unless equipment is immediately available for the rapid accurate determination of serum lithium. The atomic absorption spectrophotometer is considered the best instrument by most laboratory authorities, although certain flame photometers will also suffice.

The three therapeutic uses of lithium carbonate to be considered are: (1) Manic depressive disorder, manic phase; (2) manic depressive disorder, prophylactic or maintenance phase, and (3) prophylactic use, research. With each, dose and serum levels will be discussed.

1. Manic depressive disorder – manic phase: There is considerable variation in the daily dose required to produce the desired serum lithium level. It should be remembered that a highly active manic patient may tolerate over twice as much lithium as the same patient during remission. In general, the highly active patient requires a much larger dose than the mildly active patient. Nearly all of our manic patients required 2100 to 2400 mg daily for at least a few days.

There is some difference of opinion as to what constitutes a therapeutic serum level of lithium. The range has been suggested to be 1.2 mEq/L to 2.0 mEq/L on blood drawn 8 to 12 hours after the last dose. In a recent report, the VA-NIMH Collaborative Study Group[5] indicates that a level of 1.4 mEq/L appears to be therapeutic. They added that levels above this for any length of time are superfluous and increase the danger of toxicity. There is general agreement that levels above 2.0 mEq/L are not needed and are dangerous.

The dose required to produce desired serum levels varies. We have found in general that 600 mg for the first day increasing by 300 mg each day reaching 2400 mg at about one week is satisfactory. Serum levels during this stage of treatment are done daily or every two days. The

Continued on Page 147

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Adverse Reactions: Nausea, headache, anorexia, vomiting, diarrhea, epigastric distress, abdominal cramping, constipation, a metallic, sharp and unpleasant taste, furry or sore tongue, glossitis and stomatitis possibly associated with a sudden overgrowth of *Monilia*, exacerbation of vaginal moniliasis, an occasional reversible moderate leukopenia, dizziness, vertigo, incoordination and ataxia, numbness or paresthesia of an extremity, fleeting joint pains, confusion, irritability, depression, insomnia, mild erythematous eruptions, "weakness," urticaria, flushing, dryness of the mouth, vagina or vulva, pruritus, dysuria, cystitis, a sense of pelvic pressure, dyspareunia, fever, polyuria, incontinence, decrease of libido, nasal congestion, proctitis, pyuria and darkened urine have occurred in patients receiving the drug. Patients receiving Flagyl may experience abdominal distress, nausea, vomiting or headache if alcoholic beverages are consumed. The taste of alcoholic beverages may also be modified. Flattening of the T wave may be seen in EKG tracings.

Dosage and Administration

For Trichomoniasis. In the Female: One 250-mg. tablet orally three times daily for ten days. Courses may be repeated if required in especially stubborn cases; in such patients an interval of four to six weeks between courses and total and differential leukocyte counts before, during, and after treatment are recommended. Vaginal inserts of 500 mg. are available for use, particularly in stubborn cases. *When the vaginal inserts are used,* one 500-mg. insert is placed high in the vaginal vault each day for ten days and the oral dosage is reduced to two 250-mg. tablets daily during the ten-day course of treatment. Do not use the vaginal inserts as the sole form of therapy. *In the Male:* Prescribe Flagyl only when trichomonads are demonstrated in the urogenital tract, one 250-mg. tablet two times daily for ten days. Flagyl should be taken by both partners over the same ten-day period when it is prescribed for the male in conjunction with the treatment of his female partner.

For Amebiasis. Adults: For acute intestinal amebiasis, 750 mg. orally three times daily for 5 to 10 days. For amebic liver abscess, 500 to 750 mg. orally three times daily for 5 to 10 days.

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*Indications: Edema associated with congestive heart failure, cirrhosis of the liver, the nephrotic syndrome; steroid-induced and idiopathic edema; edema resistant to other diuretic therapy. Also, mild to moderate hypertension.

Contraindications: Pre-existing elevated serum potassium. Hypersensitivity to either component. Continued use in progressive renal or hepatic dysfunction or developing hyperkalemia.

Warnings: Do not use dietary potassium supplements or potassium salts unless hypokalemia develops or dietary potassium intake is markedly impaired. Enteric-coated potassium salts may cause small bowel stenosis with or without ulceration. Hyperkalemia (>5.4 mEq/L) has been reported in 4% of patients under 60 years, in 12% of patients over 60 years, and in less than 8% of patients overall. Rarely, cases have been associated with cardiac irregularities. Accordingly, check serum potassium during therapy, particularly in patients with suspected or confirmed renal insufficiency (e.g., elderly or diabetics). If hyperkalemia develops, substitute a thiazide alone. If spironolactone is used concomitantly with 'Dyazide', check serum potassium frequently—both can cause potassium retention and sometimes hyperkalemia. Two deaths have been reported in patients on such combined therapy (in one, recommended dosage was exceeded; in the other, serum electrolytes were not properly monitored). Observe patients on 'Dyazide' regularly for possible blood dyscrasias, liver damage or other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving Dyrenium (triamterene, SK&F). Rarely, leukopenia, thrombocytopenia, agranulocytosis, and aplastic anemia have been reported with the thiazides. Watch for signs of impending coma in acutely ill cirrhotics. Thiazides are reported to cross the placental barrier and appear in breast milk. This may result in fetal or neonatal hyperbilirubinemia, thrombocytopenia, altered carbohydrate metabolism and possibly other adverse reactions that have occurred in the adult. When used during pregnancy or in women who might bear children, weigh potential benefits against possible hazards to fetus.

Precautions: Do periodic serum electrolyte and BUN determinations. Do periodic hematologic studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in postsympathectomy patients. The following may occur: hyperuricemia and gout, reversible nitrogen retention. decreasing alkali reserve with possible metabolic acidosis, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), digitalis intoxication (in hypokalemia). Use cautiously in surgical patients. Concomitant use with antihypertensive agents may result in an additive hypotensive effect.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis; rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting (may indicate electrolyte imbalance), diarrhea, constipation, other gastrointestinal disturbances. Rarely, necrotizing vasculitis, paresthesias, icterus, pancreatitis, and xanthopsia have occurred with thiazides alone.

Supplied: Bottles of 100 capsules.

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IN EDEMA*—IN HYPERTENSION*

variation in patient tolerance and response makes the need for the frequent examination obvious. On reaching a dose level of about 2400 mg per day and a therapeutic serum level, one must then make one of three decisions on a clinical and laboratory basis. These are (1) hold the dose at this level for a few days, (2) raise it a bit more, or (3) lower it slowly and seek a prophylactic level.

2. Manic depressive disorder – prophylactic or maintenance phase: Once the manic phase has been controlled by lithium, chlorpromazine, or both, a maintenance or prophylactic dose and serum lithium level may be sought and the patient continued indefinitely on lithium. If lithium has been used in the manic phase, the dose can be lowered to the level which will maintain the serum level in the desirable range. In our experience, we found this dose to be 1200 to 1500 mg daily. If lithium was not used in the highly manic stage, it may still be used in the prophylactic stage if the physician desires with the dose and serum level being established essentially as described below (prophylactic use – research).

The serum lithium level usually recommended for prophylactic stage in manic patients is 0.6 mEq/L to 1.2 mEq/L. Many investigators feel that these manic patients in remission should be maintained in the upper half of this range. This in general was our experience. We found that weekly determinations of serum lithium were satisfactory during the period of establishment of the prophylactic dose. Monthly determinations after this were adequate in most cases.

3. Prophylactic use – research: As previously noted, the prophylactic use of lithium carbonate on patients other than manics is strictly a research procedure. Fifty-three patients in this category have been observed at this Center in the past two years. The desired prophylactic dose and serum levels were achieved by starting the patients on 600 mg of lithium daily and determining serum levels weekly and raising the daily dose by 300 mg each week until the desired level was achieved. The dose was then maintained at this level and serum levels determined monthly.

The average daily dose of lithium required to maintain serum levels in the lower half of the usually accepted prophylactic range (0.6 mEq/L to 1.2 mEq/L) in our series was somewhat higher than the usually recommended prophylactic dose of 900 mg daily. The following table summarizes our experience:

Table 1

Daily Prophylactic Dose (53 Patients)

	600 mg	*900 mg*	*1200 mg*	*1500 mg*
Number of Patients	2	15	29	7
Mean Serum Lithium	0.76 mEq/L			

Toxicity

The toxic effects of lithium have been the subject of many investigations and reports. As with many drugs, the PDR lists more than 50 adverse effects which have been reported. Overall, the occurrences of adverse effects may vary from 5% to 60% depending on the type of patient being treated and to some extent on the dose being used. In one report, the incidence of adverse effects occurring in highly active manic patients at serum levels above 1.4 mEq/L was compared to the incidence below this level. It was found to be 63% and 18% respectively.[5] There seemed an obvious relationship to the serum level. However, all of the 15 adverse effects reported in this series have been reported also at lower serum levels and therefore do not depend entirely upon the serum level.

For purposes of this discussion, two types of adverse effects from lithium may be described. These are (1) side effects, which may occur at any serum level, and (2) lithium intoxication, which always occurs at high serum levels.

Side Effects

Side effects may be further subdivided as follows:

(1) Gastrointestinal – nausea, vomiting, diarrhea, and abdominal pain. These symptoms may occur at any time at any serum level. They are fairly common in early stages of treatment and usually clear spontaneously. At high dosage levels, these side effects are common and will always respond to adjustment of dose. In our small series of highly active patients on high doses, the incidence very temporarily approached 33%. Overall, the incidence was in the range of 5%. In no case was the drug stopped because of adverse gastrointestinal reaction.

(2) Neuromuscular – tremor, muscle twitches, ataxia, hyperactive tendon reflexes. These adverse effects have been described at all stages of treatment and at all serum levels. In most reports, there appears to be a direct relationship to the serum level. Fine hand tremor is by far the most common and the most troublesome. In our series, the overall incidence was about 15%. In some cases, it was transient and in others it was persistent though tolerated by adjustment of the timing of doses and sometimes by reduction in total dose. In only one case was it necessary to stop the drug because of this adverse effect.

(3) Electrocardiographic changes. There have been reports of electrocardiographic changes attributed to lithium for at least ten years.[6] The reported incidence of the occurrence of these changes has varied from 20 to 100%. Interest has increased recently and in a 1971 article Demers and Heninger[7] reported their findings in six cases. Their experiment was well controlled and they reported depression of T waves as the only change believed to be due to lithium. They suggested that while these changes were not always very marked, they were definite. They further suggested that the changes took place within 3 to 5 days of starting lithium, persisted for as long as lithium was given, and reversed completely to the pre-treatment state within a few days after stopping lithium. It was concluded therefore that the changes were benign and reversible and did not reflect myocardial damage. There appeared to be no relationship to dose or serum level.

In our lithium-treated patients, we have routinely done a base-line pre-treatment electrocardiogram and re-

checked the tracing annually. With this new interest in electrocardiographic changes, possibly due to lithium, we have started a retrospective review of our experience. We have done electrocardiograms at varying intervals after starting lithium. All 72 of our patients had a pre-treatment tracing and 40 patients have had a tracing after periods of lithium treatment varying from three weeks to one or more years. From the recent report,[7] tracings done after three weeks are as likely to show changes as are those of one year or more.

Initially, all electrocardiograms were interpreted routinely by one of the members of the cardiology staff at this Center. The tracings were then retrospectively reviewed independently by Dr. J. B. Dana, Chief of Cardiology, and the author. The findings summarized in Table 2 represent a composite opinion.

TABLE 2

REVIEW OF ELECTROCARDIOGRAMS

Before Treatment	*After Treatment*			
		Normal	*Borderline*	*Abnormal*
Normal Tracing (37)	Lowering of T. waves	18	2	3
	Increased Amplitude of T waves	5		
	No Change	9		
	Total	32	2	3
Borderline Tracing (3)	Lowering of T Waves			1
	Increased Amplitude of T Waves	2*		
	Total	2		1
	Totals	34	2	4

*One tracing became abnormal within the next year

As noted in Table 2, 22.5% (9 of 40) were interpreted exactly the same before and after lithium while 17.5% (7) tended to show a more favorable picture. Twenty-four or 60% showed varying degrees of T wave depression. Of this 24, 18 remained within normal limits while 4 became abnormal and 2 became borderline. Thirty-four of 40 tracings remained within normal limits after lithium treatment.

These findings point out the need for further carefully controlled study. It should be emphasized that the lowered T waves cannot be attributed unequivocally to lithium.

(4) Thyrotoxic effects. Lithium has been called goitrogenic but to date the exact mechanism by which it gives rise to goiter is not known. Schou[8] reported finding 12 cases of goiter in 330 patients while Cooper, Wagner and Kline[9] saw only 4 cases in 500 patients. In our series, we have found no thyroid enlargement to date.

Other reports have suggested various degrees of thyroid dysfunction attributed to lithium. In 1971, one of the most astonishing of these reported a case of myxedema thought to be lithium induced. It is implied that this is extremely rare.[10] Myxedema was described in a manic patient treated with 900 mg lithium daily for 6 months with the serum levels ranging from 0.15 mEq/L to 0.3 mEq/L, followed by two weeks of treatment with 1800 mg daily. No serum lithium levels are mentioned following this increased dose. At this time, classic laboratory evidence of myxedema was reported.

Such an occurrence is rare and poses many questions. Transient decreases in protein bound iodine, increases in ^{131}I uptake and increased thyroidal iodine clearance in lithium patients have been reported by many investigators. These changes are not usually clinically significant and usually adjust themselves by compensatory mechanisms. In our series monitoring PBIs, T_4 and FT_4 and total iodine clearances we have seen no significant deviations from the normal. We do not imply from this that continued monitoring of thyroid indices is unnecessary.

Lithium Intoxication

Although in our two year experience we have not seen this serious complication, it is necessary to keep this possibility constantly in mind. While fortunately this condition is rare, it actually should never occur if adequate follow up is maintained.

It should be remembered that lithium intoxication never occurs suddenly. Prodromal symptoms such as lethargy, drowsiness, tremor, muscle twitching, dysarthria, anorexia, and vomiting or diarrhea usually begin several days to a week before the full-blown picture develops. It should particularly be kept in mind that patients on long-term maintenance therapy who develop any of the above symptoms require examination and a serum lithium determination. In interpreting these levels, the physician should remember that the serum level should fall by about half for every day off the drug. One must also remember, however, that there is intracellular storage of lithium which fact may account for the occurrence of toxicity at relatively low serum levels.

The fully developed case of lithium intoxication usually shows coma or semi-coma, rigidity, hyperactive reflexes and seizures at times. They have a high incidence of pulmonary complications. Treatment is supportive and much like barbiturate poisoning with particular attention to fluids, electrolytes, and kidney function. It may last three weeks. Obviously, the best treatment is prevention.

Summary

In summary, three aspects of lithium carbonate treatment have been discussed. These are (1) dosage, (2) serum levels, and (3) toxicity.

Dosage and serum levels have been considered together since under normal conditions one depends entirely on the other. Some data suggest that average doses both therapeutic and prophylactic may be somewhat higher than those recommended by the manufacturers. The absolute necessity for immediately available serum lithium determinations has been re-emphasized.

Toxicity has been reviewed with some emphasis on the electrocardiographic findings of lowered T waves after lithium treatment in 60% of 40 cases examined retro-

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Maine Heart Association Notes
20 Winter Street, Augusta, Maine

Cardial Tamponade and Constrictive Pericarditis Treatment — Part II

Ralph Shabetai, M.D.*

In the preceding article in this series, pathophysiology, clinical signs and symptoms, and etiology of cardiac tamponade due to pericardial effusion and constrictive pericarditis were discussed. We shall now consider treatment of these conditions.

Tamponade

The only treatment is removal of the fluid. If the patient is moribund, pericardiocentesis is carried out as an emergency. More often, the patient should be moved to the operating suite, intensive care area or cardiac catheterization laboratory. Of the several approaches to the pericardium, the xiphisternal is the safest. The patient rests supine with the thorax elevated 45 degrees. The skin and subcutaneous tissues a few mm from the xiphisternum are cleansed and infiltrated, and then pierced with the tip of a number eleven blade. An 18T needle is advanced posteriorly until its tip has negotiated the boney margin of the thorax. The needle is then advanced close to the midline with a slight posterior tilt, until the pericardium is reached. If there is much effusion, little or no cardiac pulsation will be felt. The needle is advanced through the pericardium, usually with a palpable sensation.

A conventional ECG lead should be monitored throughout the procedure. If it is absolutely certain that all equipment is properly grounded, the position of the needle tip can be monitored by a direct ECG lead. A cable connects the needle hub and an indifferent electrode (e.g. a limb lead) to the electrocardiograph which is set in position "V". If the needle tip touches the epicardium a large ST segment elevation occurs in the needle lead, and a smaller one in the conventional lead. Also ventricular extrasystoles may be provoked. When these phenomena occur, the needle should not be advanced further, but should be withdrawn slowly and carefully, until the ST segments are again isoelectric.

As soon as the pericardium is entered, a sample is aspirated, and if bloody, its hematocrit and clotting time are compared with those of the patient's blood. Hemorrhagic fluid rarely clots and almost always has a lower hematocrit than venous blood. Pericardial pressure should then be measured with a manometer after which, samples should be obtained for bacteriology, chemistry, and cytology. Removal of the first 50-200 ml of fluid usually produces prompt relief because of the steep pericardial pressure volume curve. Venous pressure and pulsus paradoxus decrease and the arterial pulses become full. Pericardial fluid is aspirated as long as it comes off easily, and preferably until the pericardial pressure is zero or less. No elaborate precautions to prevent air aspiration are needed; indeed, introduction of a volume of air or CO_2 equal to less than half the aspirated fluid volume is useful to delineate the pericardium in subsequent chest roentgenographs.

Sometimes it is desirable to leave a small tube in the pericardium. Chemotherapeutic agents may be instilled into the pericardial sac. A chest roentgenograph is obtained at the end of the procedure. Appropriate systemic antibiotic therapy is commenced, and if tuberculosis is a reasonable possibility, steroids may be administered as well.

If a delay in initiating pericardiocentesis is inevitable, the circulation can be temporarily sustained by infusion of isoproterenol together with volume expansion by means of dextran, blood, or saline. Isoproterenol is started at 2-4 micrograms per minute and increased until perceptible effects on the pulse and pressure are evident. Recurrence of tamponade may require repetition of pericardiocentesis, but surgical drainage may then be preferable. In traumatic cases recurrence after one or two successful aspirations is an indication for surgical drainage. When tissue diagnosis is important and a physician experienced in the technique of pericardiocentesis is not available, the pericardium can simply be drained and biopsied under local anesthesia after excision of the xiphoid process.

Constrictive Pericarditis

Once this diagnosis is established, the patient should be referred to a thoracic surgeon for pericardiectomy. Patients improve following digitalization because of the frequent myocardial involvement associated. Tachycardia secondary to atrial fibrillation responds well to digitalis, as in heart failure. These measures alone produce diuresis, but it is usually advisable to administer diuretics as well. These are given in high dosage for as long as they are effective and serum sodium and chloride levels are not excessively depressed. Serum potassium must be maintained at normal levels by means of oral potassium chloride administration, and salt intake

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Prepared by the Maine Heart Association for this Journal.

should be moderately reduced. Because of liver congestion, alcohol and other hepatic toxins must be forbidden. These measures may be employed to effect an immediate improvement and to prepare the patient for pericardiectomy. They are also remarkably successful for variable periods, in patients who are unwilling to undergo operation, but in these circumstances slow progression of physiologic decompensation invariably occurs.

Pericardiectomy is now a safe operation. In a young individual without pericardial calcification, cardiac enlargement, or atrial fibrillation the mortality is virtually zero. Thus the operation is urgently indicated in subacute constrictive pericarditis. In chronic calcific constrictive pericarditis, the operative risk is 5-10% in the hands of experienced cardiac surgeons. Pericardiectomy is not an open heart procedure, but full cardio-pulmonary bypass facilities should be immediately available to deal with cardiac trauma, evidence of which may appear suddenly at any time during the operation.

Several months elapse after operation before recovery is complete, especially in the more chronic cases. Venous pressure is reduced somewhat immediately following operation but only slowly returns to normal. Digitalis and diuretics may be required for several months to control edema and effusions. In the most chronic cases with heavy calcification and long standing congestion, the aim is improvement rather than cure. The results in these patients are limited by myocardial involvement, hepatic insufficiency, chronic pulmonary congestion and pleural disease.

Cardiac compression secondary to malignant disease should be managed as conservatively as possible. Pericardiocentesis and the instillation of cancer chemotherapeutic agents may control the process in some patients. In others it may be necessary to construct a pericardiopleural window to drain the pericardium via the pleural space. There is little to be done for patients with constrictive pericarditis secondary to malignancy without an element of pericardial effusion. Surgeons are generally appropriately reluctant to perform pericardiectomy under such circumstances.

A CLINICAL, RADIOLOGIC, AND PHYSIOLOGIC EVALUATION OF CHEST PHYSIOTHERAPY

Continued from Page 145

ACKNOWLEDGMENT

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LITHIUM CARBONATE: Dosage, Serum Levels and Toxicity — *Continued from Page* 148

spectively. The significance of this apparently benign finding is uncertain.

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Update on Blue Shield

The Blue Shield system, both on the national and local levels, has undergone tremendous expansion in recent years. Seventy-one Blue Shield plans throughout the country, including the Maine Plan, provide coverage to a total of approximately 65.5 million Americans and pay nearly $2.5 billion in claims a year. The Maine Plan, with over 1,230 participating physicians, covers about 415,000 Maine people and paid almost $7 million to physicians last year.

While most Blue Shield Plans nationally operate under separate administrations from Blue Cross Plans, Maine Blue Cross and Blue Shield is unique in that both Blue Cross and Blue Shield are administered by the same corporation, with the same Board of Directors and under the same roof, lending to a more efficient and economic operation.

Acting as intermediary for the government, Maine Blue Cross and Blue Shield processed over 175,000 claims in 1971 for Medicare, the Civilian Health and Medical Program for Uniformed Services (CHAMPUS), and the Maine Department of Health and Welfare Title XIX program (Medicaid).

The National Association of Blue Shield Plans serves as a national coordinating agency for the 71 autonomous local Plans and performs and assists member Plans in a variety of functions, including the gathering and reporting of statistical information, seminars and educational training programs for Plan employees, Congressional liaison activities, national advertising and public relations programs, continuity in the administration of government health programs, and technical assistance in the development and operation of electronic data processing systems.

Also, the National Association conducts performance review audits of member Plans, utilization review studies, public service health information programs on subjects like drug abuse and alcoholism, environmental research into new and experimental forms of health care delivery, national account negotiations and rating services, and liaison activities with providers of health care.

Locally, Maine Blue Cross and Blue Shield, through the Blue Shield Division, not only processes physicians' claims but also carries on many of the same functions locally as the National Association conducts, including a professional relations function, an active support of peer review, and the support and development of methods to help curb health care costs.

The professional relations staff at Maine Blue Cross and Blue Shield is responsible for maintaining a direct liaison between the Plan and Blue Shield participating physicians. Ralph Osgood, Administrator of Professional Relations, is in contact with Maine physicians continuously to get important Blue Shield information to them and to answer any questions they might have about Blue Shield.

Among the programs Maine Blue Cross and Blue Shield is involved in to help reduce the costs of health coverage to the consumer is the Coordination of Benefits program. This provision, to be instituted in all group contracts, will affect both Blue Cross and Blue Shield claims in that the total amount of benefits a member of a group can receive under the provision in the event that the member is covered by another group contract through his spouse would not exceed the combined coverage of the two contracts up to the expenses incurred. The COB provision will provide full combined coverage but will guard against overpayments.

Blue Shield is an integral part of the Maine Blue Cross and Blue Shield effort to provide the most comprehensive coverage possible. When the Dental Care Program, which is now being developed, goes into effect, it will be administered by the Blue Shield Claims Department. The Dental Care Program, which will be made available to groups, is structured on a building block system, allowing the member to choose the dental plan that best suits him.

Blue Shield is responsive to the needs of the physician on both the local and national levels. Future cooperation between Blue Shield and physicians will be seen in a number of areas including the use of the computer, locally the Blue Cross Data System. The computer is now being used to consolidate information relevant to physicians' practices, and further means are being developed to help consolidate knowledge for physician and hospital use.

As Maine Blue Cross and Blue Shield has expanded its role in terms of supporting the physician, so too has the National Association increased its role in supporting local Plans. Ned F. Parish, the National Association President, recently said: "As the role and responsibilities of the health care industry have grown more complex, so too has the size and influence of the National Association. Today, NABSP stands ready to assist all member Plans in whatever functions they deem necessary. In endeavoring to advance the health and welfare of the public, our primary function is to serve members in the coordination of their methods, coverage programs, operations and enrollment policies."

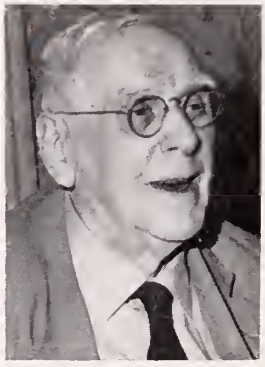
Necrologies

Ansel S. Davis, M.D.

1876-1972

Dr. Ansel S. Davis, 95, of Springvale, Maine, long-time general practitioner, and the oldest living graduate of the Bowdoin Medical School, died on June 7 at a local hospital.

In June 1971, he was the first physician to receive a pin from the Maine Medical Association in recognition of 70 years' service in the practice of medicine.



Dr. Davis

Dr. Davis was born on December 16, 1876 at Somersworth, New Hampshire, where his father, Samuel Davis, was an overseer in the Great Falls Manufacturing Co. cotton mill. Both his father and his mother, Melissa Bradeen Davis, were members of old Waterboro families. He attended Somersworth High School, New Hampshire State and received his medical degree from Bowdoin Medical School in 1901.

In 1901, the late Dr. Fred Bragdon of Springvale invited the young doctor to join him in his extensive medical practice. Two years later, Dr. Davis moved to Maplewood and practiced medicine there for 11 years, returning to Springvale in 1914.

During his years of practice, he ushered more than 1,000 babies into the world. He was plant physician for many years for the Sears, Roebuck and Co. shoe shop and at the Springvale plants of the Goodall Mills.

Dr. Davis started his practice in the "horse and buggy" days. His first car, bought in 1909, was a one-cylinder Reo. The practice of medicine changed tremendously during his long career, and he kept touch with developments in the field, reading continually and taking many special courses.

He became a member of the medical staff of the Henrietta D. Goodall Hospital when it was established in 1928 and delivered the first baby at the new hospital. In 1944, he retired from active practice and from the hospital staff the following year.

Dr. Davis was an honorary member of the York County Medical Society and the Maine Medical Association. He was also a member of the American Medical Association, a founder and past president of the Sanford-Springvale Rotary Club, a former trustee of Nasson College, a former director of the Springvale National Bank, and was a charter member of the Redman's Lodge at North Shapleigh.

He married Maude Littlefield of Waterboro on September 14, 1898. Mrs. Davis died in 1967. He is survived by two sons, Dr. Allan L. Davis, a surgeon, of Brookline, Massachusetts and North Waterboro, and Philip S. Davis of Brewer, Maine. Another son, Ansel, died in 1969. There are nine grandchildren and 22 great-grandchildren.

Andrew M. Szendey, M.D.

1906-1972

Dr. Andrew M. Szendey, 66, of Madison, Maine, president of the staff of Redington-Fairview General Hospital in Skowhegan, died unexpectedly on May 20 at his home.

He was born in Budapest, Hungary, the son of Dr. Bela and Eva Degre Szendey. Dr. Szendey received his medical degree from the Royal Hungarian "Pazmany Peter" University of Sciences in Budapest, Hungary in 1933. He interned at Long Beach, California and served residencies at St. Mary's Hospital in Staten Island and the Sea View Hospital in El Monte, California. In 1955, Dr. Szendey located in Madison.

Dr. Szendey was a member of the Somerset County Medical Society and the Maine Medical Association.

Surviving are his widow, the former Gabriella Brunner; four daughters, Klara and Judith, both of Hungary, and Elizabeth and Barbara, both of Madison; a son, Andrew C. of Madison; a sister, Mrs. Attila Varady of Albany; a godson, Bela Szendey of Vienna, Austria; and several nieces and nephews.

Ralph A. Getchell, M.D.

1898-1972

Dr. Ralph A. Getchell, 73, of Cape Elizabeth, Maine, died on June 8 after a long illness.

He was born in Portland, Maine on November 23, 1898, son of Evander P. and Annettee Walker Getchell. He was graduated from Portland High School, the University of Maine and received his medical degree from the University of Vermont College of Medicine in 1928. Following graduation, he interned at the Salem (Massachusetts) General Hospital, coming to Portland in 1929 to begin his practice.

During World War II, he served in the U.S. Army Medical Corps in the European theatre, retiring as a Colonel. He returned to private practice in Portland at the end of the war and was active on the staffs of the Maine Medical Center and the Mercy Hospital until his retirement in 1960.

Dr. Getchell was a member of the Cumberland County Medical Society, the Maine Medical Association, the American Medical Association and the American College of Surgeons.

He is survived by his wife, the former Louise Kennedy, and two cousins.

County Society Notes

LINCOLN-SAGADAHOC

The regular meeting of the Lincoln-Sagadahoc County Medical Society was held at The Ledges in Wiscasset, Maine on March 21, 1972.

The meeting was called to order by the President, Dr. Anthony J. Keating. The motion was made and approved that the reading of the minutes of the last meeting be deferred until the next meeting.

Dr. Bostwick presented the recommendation of The Board of Censors that the Society approve the transfer of active membership of Dr. Ronald A. Swanson from the Cumberland County Medical Society to this Society.

Dr. Keating then introduced Dr. Charles E. Burden, who spoke on Maritime Medicine.

GEORGE W. BOSTWICK, M.D., *Secretary*

The regular monthly meeting of the Lincoln-Sagadahoc County Medical Society was held at The Ledges Inn in Wiscasset, Maine on April 18, 1972.

The meeting was called to order by the President, Dr. Anthony J. Keating at 8:30 p.m. The reports of the February and March meeting were read and accepted. Drs. Keating and Nelson P. Blackburn expressed a hope that future wives' meetings be more carefully planned to allow for a more cohesive hour socially.

Dr. Paul A. Fichtner commented on past attempts at the organization of a Woman's Auxiliary. Dr. Fichtner moved and Dr. Mary J. Tracy seconded a motion that the "Woman's Auxiliary" reorganize. This motion was passed.

Old business: Dr. Blackburn inquired as to the status of the WCME broadcast. In the absence of Dr. Robert S. Galen, further discussion was tabled.

Program: Report of the Delegates of Interim Meeting of the M.M.A. House of Delegates. This was as follows: Dr. Tracy discussed Dr. David Dixon's report on Poor and Underprivileged and the report (from Cumberland County) of dialogue with osteopaths. Dr. Tracy and Dr. Fichtner also clarified the current admission at the Augusta State Hospital to wit: No patient will be denied admission without being seen by a physician. Dr. Blackburn discussed the current group insurance program – soon to be raised 18%. A deductible policy seemed to be favored by the group present. M.M.A. dues will be raised by $25.00 to cover the Maine Medical Education Foundation, if this is approved in June.

Dr. George W. Bostwick and Dr. James C. Bates are the two nominees for President-elect for the coming year.

After Dr. Blackburn's presentation of the Ad Hoc Committee studying the Medical School for Maine, it was moved and seconded and passed that this county support continued study of this project. This generated considerable discussion. Additional resolutions were discussed.

The meeting was adjourned at 10:30 p.m.

FRANK O. AVANTAGGIO, JR., M.D., *Secretary pro tem*

The regular meeting of the Lincoln-Sagadahoc County Medical Society was held at The Ledges Inn in Wiscasset, Maine on May 16, 1972.

The meeting was called to order by the President, Dr. Anthony J. Keating at 8:50 p.m. The minutes of the April meeting were accepted as read. Dr. George W. Bostwick reported that WCME had replied to his letter that they had not kept any record of exactly what was said on the program during which Dr. Kaknes spoke.

Dr. Bostwick presented the recommendation of the Board of Censors that Dr. Pauline Starks and Dr. David Hill be accepted to active membership. The report was approved unanimously by the membership.

Dr. Nelson P. Blackburn introduced Dr. Jan Drury, who spoke on the renal transplant program in the State of Maine.

GEORGE W. BOSTWICK, M.D., *Secretary*

YORK

The bi-monthly meeting of the York County Medical Society was held at the Goodall Hospital on March 8, 1972. It was an evening meeting and consisted of a social hour from 6:30 to 7:30 p.m. and dinner followed. The meeting was presided over by Ruth E. Endicott, M.D. of Ogunquit, Maine, President of this Society.

The principal speaker was Vincent McInnis, Health Educator, Franklin County Community Action Council, East Wilton, Maine. His subject was "Air Pollution." He in part discussed this problem in relation to York County.

The following appointments to various committees were made by Dr. Endicott. These were as follows:

Resolutions Committee: Drs. Donald E. Troop, Andre P. Fortier and Conner M. Moore

Auditing Committee: Drs. Melvin Bacon and Lawrence R. Hazzard

Medical Procurement: Drs. George A. Lord, Marcel P. Houle and Herman G. Sandvoss

Nominating Committee: Drs. Carl E. Richards, Chairman, Kenneth E. Leigh and Melvin Bacon

State Committee on Drug Abuse of Lawyers and Physicians – *York County Appointee:* Dr. Maurice Ross

There were two applications for membership, one of which has been turned over to the Censors Committee for its review. The second has since been withdrawn.

The meeting of the House of Delegates was announced and was to be held at the Thayer Hospital, Waterville, Maine at 2:00 p.m., April 9, 1972. Each delegate and alternate were to be notified and reminded of this meeting in advance.

The next meeting of the York County Medical Society is to be held at the Webber Hospital, Biddeford on May 10, 1972. It will be an evening meeting with a social hour from 6:30 to 7:30 p.m., dinner to follow. The featured speaker will be Bennett Katz, State Senator, Chairman of the Education Committee of the Maine Senate. His subject will be "A Medical School for Maine." The Committee in charge of arrangements for this meeting will be composed of Drs. Thomas Anton, William O. Buell and Roger J. P. Robert.

A very heated discussion followed, protesting the recent adverse publicity received by the medical profession in various editions of the Portland Press Herald and also that occurring in the Portland Sunday Telegram in a mid-February edition. This Society went on record as recommending censure of physicians who allow themselves to be quoted without authorization. It was voted to write to the Maine Medical Association about this.

In addition, it was also recommended that the Maine Medical Association review the fee schedule for our State paid by Medicare, etc. to the physicians, noting the disparity with fees in other parts of the country as compared with our State. "Medical Economics" had a table of fees which showed the Maine fees are the lowest in the country. This should be investigated by the Maine Medical Association. These matters could be brought up and discussed by the Executive Committee and presented at the Annual Meeting of the House of Delegates in Kennebunkport in June.

One added note. There was a paucity of attendance at the meeting.

As there was no more business to discuss, the meeting was adjourned by vote at 9:50 p.m.

CHARLES W. KINGHORN, M.D., *Secretary*

CUMBERLAND

The 368th meeting of the Cumberland County Medical Society was held at Valle's Steak House in Portland, Maine on April 20, 1972. After a pleasant Social Hour, the 75 members and guests in attendance were served an excellent roast beef dinner in the usual Valle's style. Following the dinner, the meeting was called to order by the President, Dr. Lawrence Crane.

The first order of business was that of the reading of nine applications for membership, all of which were referred to the Credentials Committee and all of which will be read again at the next meeting.

The next order of business was the discussion of the articles and bylaws making up the new Constitution and Bylaws of the Cumberland County Medical Society.

ARTICLES I and II were accepted. ARTICLE III was accepted, but in view of later action must be amended to include an associate member – an associate member being a non-resident member under Section 2. ARTICLE IV, Section 1 and 2 were accepted. ARTICLE IV, Section 3 was accepted as amended by Dr. Morrison upon a 29-17 vote in favor of his amendment. ARTICLE V was accepted. ARTICLE VI, VII were accepted and then ARTICLES I-VII were accepted unanimously as amended.

Consideration of the Bylaws: CHAPTER I, Section 1 – A new paragraph would be added, G. This would be associate member. A non-resident membership subject to the approval of the Society, exempt from the payment of dues and without any voting privileges shall be extended to those members who wish to maintain their association with the Cumberland County Medical Society although being transferred or moving to another community out of State. CHAPTER IV, Section 1. Nominations – was amended so that it reads "– at the regular meeting preceding the annual meeting of the Society, the President shall appoint a committee on nominations consisting of five members. This Committee shall present to the Society at the annual meeting at least two nominees for each elective office including the officers, a member of Professional Ethics Committee, a member-at-large of the Executive Committee and shall also appoint delegates and alternates to the Maine Medical Association. Additional nominations may be made from the floor by any member of the Society." Section 2 – Election – should be amended to read "– all such elections shall be decided by majority votes cast by written, secret ballot." CHAPTER VI, Section 2 – Professional Ethics Committee – Paragraph 1 should be amended to read, with the last sentence being omitted, "The President shall appoint the chairman from one of the committee members."

After these corrections, the Bylaws were approved unanimously by the Society and upon adoption of this Constitution and Bylaws, all previous constitutions and bylaws are hereby repealed.

The next order of business was a report concerning the Maine Medical Association House of Delegates' meeting held at Waterville on April 9, 1972. The increased cost of the Blue Cross-Blue Shield program to the physicians of Cumberland County Medical Society was discussed and the 18% increase noted. It was felt that the Society, through the Maine Medical Association, should investigate other methods of coverage for physicians. The Maine Medical Association budget was discussed briefly. The report of the committee for nominations for the Maine Medical Association was read. The resolutions to the Maine Medical Association, which were given in improper form, regarding the proposed Medical School for Maine, Utilization Review for Private Insurance Industry, Utilization Review and Peer Review Practices in Federal Medical Facilities, were discussed. It was announced to the Cumberland County Medical Society that the Recruitment, Aid and Placement report to the Maine Medical Association House of Delegates by Robert E.

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McAfee, M.D. was followed by a motion to make the Maine Medical Association dues $125. The idea of a resolution to the Maine Medical Association regarding malpractice insurance was discussed at this meeting. It was felt that because of other people investigating this particular issue, nothing should be done at this time. The meeting between the Executive Committee of Cumberland County Medical Society and the Osteopathic Association was discussed and met with cool, if not indeed icy remarks.

The next order of business was an announcement regarding the SHALOM HOUSE now open in Portland and functioning as a Halfway Station.

The Peer Review subject was then brought to the floor. Dr. Charles R. Geer discussed two cases in which the attention of the Peer Review Committee was called for. The first that of a fee charged by a physician higher than the usual, customary fee was discussed. Dr. Geer made clear that a better communication was needed between insurance carriers and doctors, and between doctors and other doctors. Also, the second case was that of two physicians attending one illness. This particular subject received considerable discussion and the focus of the problem seemed to be an equitable way to recompense both physicians for their efforts. It was felt there needed to be greater communication between doctors, between insurance carriers, and between all members of the integrated societies.

Dr. Crane announced that the nomination committee would include Dr. George Sager as chairman, and also Drs. Burnham, MacVane, and Poliner.

The meeting was then adjourned by Dr. Crane.

DOUGLAS R. HILL, M.D., *Secretary*

ANDROSCOGGIN

A meeting of the Androscoggin County Medical Society was held at Steckino's Restaurant in Lewiston, Maine on April 20, 1972. The meeting was called to order by Dr. Thomas F. Shields, President, at 8:00 p.m. with 37 members and two guests present.

The minutes of the March 16 meeting and the special meeting of March 31, were read and accepted.

Dr. Charles W. Steele reported on a recent ASIM meeting. At this meeting, there was a discussion regarding documentation of physicians' visits to patients while in the hospital. This applied in particular to teaching hospitals where residents cared for the patients. The documentation could be (1) progress notes, (2) signed order, and (3) nurses notes.

Following this, Drs. Robert J. Sbaschnig, Herbert J. Wright, Jr., Antonio C. Tiongson, Cornelia M. Tiongson and Peter R. Stubing were accepted into membership to the Society.

Dr. Stanley D. Rosenblatt reported on the Peer Review Committee proceedings. A motion was made by Dr. Rosenblatt for the County Medical Society to appropriate $10.00 per meeting for secretarial services for the county peer review committee meeting. This was seconded and approved with two members voting opposed. Actually, one objected to the limitation of $10.00.

The April House of Delegates meeting was then discussed:

(1) *Budget:* Dr. Thomas F. Shields noted that the expenses will eventually exceed the receipts. Dr. Andre P. Marcotte requested that the budget be distributed to the membership. This was not approved but Dr. John W. Carrier suggested that he has the budget and that this would be available to peruse.

(2) *Nominations:* Dr. George W. Bostwick and Dr. James C. Bates are candidates for President-elect of the M.M.A. A motion was made by Dr. Stanley D. Rosenblatt and duly seconded that our delegates use their own discretion in voting for the Slate of Officers.

(3) *Resolutions:* These will be rephrased and presented for vote at the M.M.A. annual meeting in June.

(4) *Maine Medical Education Foundation:* Originally, this was compulsory but recently it has been voluntary with a 50% reduction in contribution. It was recommended that the State dues be increased $25.00 with this sum being earmarked for the educational fund. Dr. Russell A. Morissette made a motion that our delegates be instructed therefore to vote against this change.

(5) Blue Cross explained our own rate increase. Apparently our plan is a money loser each year and in 1971 a $39,000 loss to the carrier.

The question of a $100.00 deductible insurance plan with decrease in premiums was discussed and a motion was made to the effect that our delegates favor this. This was passed by the membership.

Under new business, a change in Bylaws was brought in by Dr. Gerard L. Morin. If passed, 15 members would constitute a quorum. This was tabled until the next regular business meeting.

Dr. Gilbert R. Grimes announced that on May 18, 1972, a meeting would be held with wives invited for dinner and entertainment. No business meeting will be held.

Following the business meeting, Dr. Grimes introduced the program which consisted of a panel from the Child and Family Service – Dr. Pandya, Dr. Hampshire and Mr. William Davis.

Mr. Davis discussed the concept of the Child Family Service and stressed the importance of community service and participation. He outlined the breakdown of the C.F.S.: 1. Inpatient care, 2. Day Care Center, 3. Outpatient care, 4. Twenty-four hour emergency service, 5. Education and consultation, and 6. Projected youth programs. He discussed staffing and case load. Of interest is that only 16% of the patients are referred by M.D.'s. Dr. Pandya commented on adult services. He emphasized preventive care, early referrals, and a team approach.

Dr. Hampshire discussed the children service and his philosophy using combined therapy with the children, parents, teachers and clergy. He stressed the necessity of short-termed facilities for children and the beginning of a Model City Clinic. He also stressed the preventive aspects (Head Start, Nursery, etc.)

Following the presentation, there was a question and answer period. Pertinent was communication with the center and physicians regarding reports. Financing was discussed and Federal participation. In general, it was a good productive session for doctors and C.F.S. alike.

The meeting was adjourned at 9:50 p.m.

STANLEY D. ROSENBLATT, M.D., *Secretary pro tem*

WASHINGTON

The regular meeting of the Washington County Medical Society was held at the residence of Dr. G. Bernard Shaw, Machias, Maine on April 27, 1972 with eight members present. The meeting was called to order by the President, Dr. Shaw.

The main discussion of the meeting was the implication of the MIC plan. A non-profit corporation has been set up by the combined Hancock and Washington County Societies to operate the plan which is to be funded by Health & Welfare. Two offices will be set up, one in Machias, Maine and one in Ellsworth, Maine. Dr. Randall H. Silver will be in charge with Mrs. Philip Michie, Public Health Nurse, Social Worker, Billie Dooley, and Clerk, Patricia Hartford.

It was moved, seconded and passed the following would be elected as Board of Trustees for the MIC program:

Three M.D.'s from each County Medical Society.

One Hospital Administrator from each county.

One Consumer Representative.

Dr. Randall H. Silver, the head of the plan.

One lawyer, who will act as secretary and treasurer, who will be a non-voting member.

One Health & Welfare representative, who will be an observer.

It was also moved and seconded that we will have one consultant from each hospital in the county, with perhaps an additional consultant from the Machias Hospital, if the Machias hospital group deems it necessary.

It was also moved, seconded and passed that the Ad Hoc committee continue as medical advisory board.

The Medical Society also favored the formation of the Free Family Planning Clinic being conducted with the same MIC administrative set-up.

KARL V. LARSON, M.D., *Secretary*

Letters to the Editor

To the Editor:

For the dwarfed child or adult whom you contact in your medical practice, Human Growth Foundation and the Little People of America both offer many resources and referral possibilities. These are entirely separate, although complementary, national voluntary groups concerned with the social and medical problems and adjustments such families are facing. Each group has a board of medical advisors who have a breadth of experience in diagnosis and treatment of many types of dwarfism and associated medical and social problems. Nationally, Human Growth Foundation has been sponsoring small grants research programs, publishing a series of educational and scientific brochures, and helping with the collection of pituitary glands. LPA's handbook for members includes a medical bibliography on growth disorders, for the family physician, prepared by Dr. Leonard Langer of the University of Minnesota Medical School.

As incoming District Director for the Chapter-at-Large for Human Growth and as an auxiliary member of the Little People of America, I would be glad to answer questions, furnish bibliographic references, or provide some of the educational materials available to either the physician involved or to the family directly. As a parent of a 12 year old achondroplastic dwarf who has made a good adjustment to her school and her world through such contacts, and as a psychological examiner at Pineland Hospital and Training Center, I feel strongly that this type of contact can be of great help to parents of children with many types of disabilities.

MARGARET D. RICKER, M.A.
Box 22
No. Windham, Maine 04062

To the Editor:

I am compiling case reports of allergic reactions to biting insects, i.e., mosquitos, fleas, kissing bugs, bed bugs, gnats and flies – including horsefly, sandfly, deerfly. I am also interested in reactions to fire ants.

I would like physicians to supply me with case reports of those patients who have had reactions to such insects. Include in your reports, the history of the type of reaction and complications, if any; the immediate treatment; if desensitization were attempted, what were the results? Send to:

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Would it be useful in clinical practice to have government predetermine drugs of choice?

Opinion

Results of a survey of physicians:

13.3%
Yes, it would be useful.

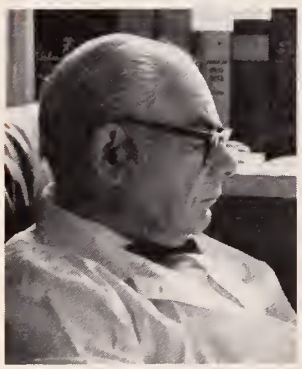
86.7%
No, it would not be useful.

Dialogue

Would it be useful in clinical practice to have government predetermine drugs of choice?

Doctor of Medicine

Walter Modell, M.D.,
Professor of Pharmacology,
Cornell University
Medical College,
Editor,
Clinical Pharmacology
& Therapeutics,
Drugs of Choice,
Rational Drug Therapy



The proposition that government should determine one or two "drugs of choice" within a given therapeutic class reflects the belief that a similarity in molecular structure insures a close similarity in pharmacologic effect. But this is by no means the rule. An obvious example would be in the field of diuretics, where a small change in chemical structure accounts for substantial differences in concomitant effects such as potassium excretion.

Any attempt to dictate the "drug of choice" would be complicated by the fact that some populations demonstrate a bimodal distribution in their reaction to drugs. If the data on drug response are mixed for the total population, one drug will appear to be as useful as the other. But if drug response is reported separately for different segments of the population, drug A will be found to be better for one group and drug B for the other.

It may, of course, be possible to determine drugs of choice in particular categories on a broad statistical basis. But there are always certain patients in whom a drug produces odd, unpredictable or idiosyncratic reactions. So, though a drug might statistically be the most useful one in a given situation, individual variations in response might make it the *incorrect* one.

The point I wish to make is that if two, three, four or more drugs in one class are of approximately equal merit, that in itself is justification for their availability. Exceptional cases do arise in which one drug would be useful to a certain segment of the population and another drug would be of no use at all. In the practice of medicine, the physician must be prepared to treat the routine as well as the unusual case.

Another objection to the determination of a drug of choice is that precise statements of *relative* efficacy are very difficult to make—much more difficult than statements of efficacy. For example, in testing drug efficacy, it is easy to determine the difference between a drug that is effective in treating a condition and one that is not at all effective. Thus, it is fairly easy to determine whether a drug is more effective than a placebo. But if you compare one drug that is effective with another drug that is also effective, and the relative differences between them are very slight, statements of relative efficacy may be very difficult to make with assurance.

I do not mean to imply that relative efficacy statements are not useful or can never be made. With some groups of drugs (e.g., analgesics), extensive study and precise methodology have yielded useful information on relative efficacy. But in most situations, such information can be acquired only through studies encompassing three to five years of use in many more patients than are used to compare drugs with a placebo for the introduction of a drug into commerce. It is really only after practitioners use a drug extensively that relative safety and efficacy in practice can really determined.

The Bureau of Drugs suggested the package sert as a possible means communicating informat on relative efficacy of dr to the physician. I find t objectionable, since I not believe the physic should have to rely on t source for final scient truth. There is also a pr tical objection: Since physicians actually d pense drugs, they seld see the package insert. any event, I would ma tain that the physici should know what drug wants and why without pending on the governm or the manufacturer to him.

Undoubtedly, physici are swamped by excess numbers of drugs in so therapeutic categories. A I am well aware that ma drugs within such ca gories could be elimina without any loss, or p haps even some profit, the practice of medici But, in my opinion, neit the FDA nor any ot single group has the exp tise and the wisdom nec sary to determine the "drug of choice" in areas of medical practice

Maker of Medicine

nneth G. Kohlstaedt, M.D.,
Vice President,
Medical Research,
Eli Lilly and Company



n my opinion, it is not function of any governnt or private regulatory ncy to designate a "drug hoice." This determinan should be made by the ysician after he has reved full information on properties of a drug, d then it will be based on experience with this ig and his knowledge of e individual patient who seeking treatment.

If an evaluation of comrative efficacy were to be ade, particularly by govnment, at the time a new ug is being approved for rketing, it would be a eat disservice to medie and thus to the patient he consumer. For exam, when a new therapeu agent is introduced, on e basis of limited knowge, it may be considered be more potent, more fective, or safer than oducts already on the arket. Conceivably, at is time the new drug uld be labeled "the drug choice." But as addinal clinical experience is cumulated, new evidence ay become available. ter, it may be apparent that the established products should not be so easily dismissed.

Variation in patient response to drugs constitutes one of the major obstacles to the determination of "drugs of choice." We are just beginning to open the door on pharmacogenetics, but it is evident that genetic differences cause wide variations in the way drugs are absorbed, metabolized, etc. This fact alone is sufficient to make unrealistic the idea that there is one drug in each class to be used for every human being.

The problem of determining relative drug efficacy is an extremely complicated one. Comparison with other drugs of the same class should not be a prerequisite for marketing a new substance. In some therapeutic areas, it may be difficult to make accurate comparisons. For example, in the treatment of infections it is not possible to conduct crossover studies. Recovery may be influenced by factors which cannot be controlled or measured, i.e., natural host resistance and virulence of infective agents. A drug's acceptability must often be judged on the basis of its own performance, and this may be limited to experience in a relatively small patient population. If the introduction of a new drug must await the adequate establishment of relative efficacy, the duration of clinical trial and extent of studies would be greatly prolonged, particularly for rare or unusual conditions. The availability of a new drug would be delayed. Many patients might suffer needlessly and lives might be lost.

Relative efficacy can best be established by experience in a general patient population through regular channels of clinical practice. The physician considers the patient as a whole, which means the patient often has multiple problems and drugs must be selected with this in mind. Hence, a "drug of choice" in an uncomplicated case may not be the best drug for a patient with associated problems. Publication of well-controlled studies in medical journals may provide comparative evidence; discussions at medical meetings, presentations at postgraduate courses, and the new audiovisual technology may bring evidence to physicians on comparative therapy. In a free medical marketplace, a drug that does not measure up will fall into disuse. For example, broad clinical experience has established vitamin B_{12} as the "drug of choice" for the treatment of primary pernicious anemia. No amount of advertising or promotional effort by the manufacturer could increase the use of liver extract for this anemia. However, a physician may wish to employ parenteral liver preparations for a special purpose.

In the field of surgery, peer review in the hospital has brought significant improvement in the use of new techniques and procedures. Something of this nature would be useful in the area of drug therapy. However, it should be developed by the medical profession itself and would necessitate, for its proper function, an improvement in the dissemination of reliable data on clinical pharmacology of drugs under consideration.

Ideally, information on the relative efficacy of drugs should be gathered and assessed by the physicians who actually administer the specific agents to a specific patient population. To do this, they will need even more information on the drugs they use – information that the pharmaceutical manufacturers must begin to provide if government regulation of *"drugs of choice"* is to be avoided.

Opinion & Dialogue

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News, Notes and Announcements

College Health Physician Needed

A position for a physician will be open at the Student Health Center of the University of Maine, September 1, 1972. The requirements are licensure or eligibility for licensure as a physician in Maine. The salary range is $17,100 to $17,750 per academic year (September 1 to Spring graduation). Details regarding fringe benefits, duties, etc., may be obtained by contacting:

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Orono, Maine 04473
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University of Wisconsin to Hold 10th Cancer Chemotherapy Conference

The Division of Clinical Oncology of the University of Wisconsin will hold its 10th Cancer Chemotherapy Conference September 6-8, 1972, at the Park Motor Inn, Madison.

The conference is open to all United States physicians interested in cancer chemotherapy. It will review and present a forward look at anti-cancer therapy of solid tumors and leukemias as well as the role of radiotherapy, immunology and virology in the treatment of cancer.

The guest faculty will include: J. Palmer Saunders, Ph.D., director of Extramural Activities, National Cancer Institute, Bethesda, Md.; Loren J. Humphrey, M.D., Professor and Chairman of Surgery, the University of Kansas Medical Center, Kansas City; Emil J. Freireich, M.D., Professor of Medicine and Chief of Research Hematology, M.D. Anderson Hospital and Tumor Institute at the University of Texas in Houston; and faculty from the McArdle Laboratory for Cancer Research and the Division of Clinical Oncology at the University of Wisconsin-Madison.

For further information contact G. Ramirez, M.D., 714-C University Hospitals, 1300 University Ave., Madison, Wisc. 53706.

Three Maine Specialists Admitted to American College of Cardiology

Three Maine doctors have been granted Fellowships in the American College of Cardiology (ACC), the national medical society for specialists in cardiovascular diseases. The doctors are among a group of 193 from United States and Canada recently admitted to the College's highest membership classification.

Harold L. Osher, M.D., Portland, Maine, the ACC Governor for Maine, listed the new Fellows as: Clement A. Hiebert, M.D., Chris A. Lutes, M.D., Jeremy R. Morton, M.D., all from Portland, Maine.

The doctors, as well as the other new Fellows, have fulfilled stringent membership requirements based on several years of practice and specialty certification. This effort, according to Dr. Osher, culminates in their being considered by colleagues in their communities as specialists or consultants in cardiovascular diseases.

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Workshops in Medical Hypnosis

Workshops in Medical Hypnosis (Introductory and Advanced) will be held in conjunction with the 24th Annual Scientific Meeting of the Society for Clinical and Experimental Hypnosis, at the Sheraton Plaza Hotel in Boston from Tuesday, October 10th through the morning of Friday, October 13, 1972. The meeting is under the sponsorship of the Psychiatric Service of the Beth Israel Hospital of the Department of Psychiatry, Harvard Medical School; Department of Psychiatry, Boston University Medical School; Department of Psychology, Northeastern University; and the Medfield Foundation.

Physicians interested in further information kindly write to: Fred H. Frankel, M.B.Ch.B. D.P.M., Workshop Chairman S.C.E.H., Department of Psychiatry, Beth Israel Hospital, 330 Brookline Avenue, Boston, Massachusetts 02215.

Dr. Louis Bove is Named to Society

Louis G. Bove, M.D., of Portland, has been designated a Fellow of the American College of Physicians – a 56-year-old international society representing specialists in internal medicine and related fields.

Announcement of Postgraduate Course

CLINICAL GASTROENTEROLOGY – September 10-16, 1972; Castle Harbour Hotel, Bermuda. Vernon M. Smith, M.D., Director, 301 St. Paul Place, Baltimore, Md. 21202.

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No Load Warfarin Therapy – Long Overdue

Louis G. Bove, M.D.*

It is over twenty years since Marple and Wright[1] made medical history by first reporting the use of anti-coagulant agents in the treatment of thromboembolic disease. Their report was preceded by the isolation of bishydroxycoumarin by Campbell and Link[2] as the hemorrhagic agent in spoiled sweet clover. Although the proper indications for use of anti-coagulants is still a matter of debate by many, investigation of the mechanisms of action of these agents has led to a basic pharmacological knowledge accepted by all. With this knowledge and understanding, we as physicians should be able to use these anti-coagulant agents correctly once the decision to use them is made. Five years ago O'Reilly and Aggeler[3] recommended the no-load, slow start technique of warfarin therapy. It is the purpose of this brief paper to point out the advantages and safety of the no-load technique, in the face of the disadvantages and fallacies of the loading technique.

The synthesis of clotting Factors II (prothrombin), VII (proconvertin), IX (Christmas), and X (Stuart-Prower) requires Vitamin K. These four proteins, referred to as the prothrombin-complex, are synthesized in the liver and are Vitamin K-dependent. All but Factor VII are involved in the intrinsic system of blood coagulation. Factor VII leads to thrombin formation using tissue thromboplastin via the extrinsic system. Low plasma concentrations of Factors II, VII, IX and X are described as hypoprothrombinemia. Under the influence of coumarin drugs, the production of these four factors ceases, and the lengthening of the one stage prothrombin time reflects the natural catabolic rate of Factors II, VII and X already in the plasma. The one-stage prothrombin time is not influenced by Factor IX; abnormal concentration of this factor are shown by abnormalities in thromboplastin formation, so-called Stage I, i.e., partial thromboplastin time (PTT). The rates at which Factors II, VII, IX and X disappear vary considerably; the half life of II is 60 to 120 hours; of VII is 1½ to 6 hours; of IX is 17 to 40 hours; and of X, 20 to 48 hours. Because of the very short half life, Factor VII is the first to disappear once production ceases under the influence of coumarin drugs, and this is the reason for the early change in the one-stage prothrombin time. If the coumarin drugs are continued, all four of the Vitamin K-dependent clotting factors are reduced. Increasing the amount of drug given beyond that required to cause complete cessation of production of these clotting factors does not hasten the speed of induction of the therapeutic response. The effect of the size of the loading dose is on the length of time the drug will remain in the plasma, and hence the degree and duration of response.

It is apparent that the administration of a large initial dose of coumarin may depress the plasma concentration of Factor VII to dangerously low levels during the time required to achieve depression of the other factors; but will not hasten this time. This often results in bleeding secondary to low Factor VII levels and a delay in finding a proper maintenance dose. Equally important is the fact that the therapeutic basis of the use of the anti-coagulant drugs is because of their interference with blood coagulation. Most investigators feel that thrombogenesis, particularly in the venous thrombosis, is mediated through the intrinsic system of blood coagulation, and Factor VII is not involved in this pathway and hence no true effect occurs until Factor II, IX and X are depressed. These factors fall off just as fast when therapy is initiated with a 10 to 15 milligram daily dose of warfarin sodium as when a larger dose is given.

The main argument against small daily doses of warfarin sodium for initiating therapy is that there is too long a delay in achieving the desired level of prothrombin complex activity. O'Reilly and Aggeler[3] showed, however, that subjects who received 15 milligrams per day showed a reduction to 35 percent or less activity in the one-stage prothrombin time by 72 hours and all subjects

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Electronic Measurement of Blood Sedimentation Rate*

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ABSTRACT

The sedimentation of blood was measured by means of a vertically-mounted conductivity cell. As the blood settled, its average resistance decreased. By putting the cell in one arm of an AC bridge, and amplifying and rectifying the unbalance voltage, curves of sedimentation as a function of time were recorded. Two experimental cells were designed and tested. The resistivity of unsedimented blood was obtained from the initial readings.

In this method, a vertically-mounted conductivity cell was filled with blood, and the resistance between electrodes in the cell measured as a function of time. Since the resistivity of blood depends upon the hematocrit,[1] the cell resistance at any time was proportional to the degree of sedimentation.

The cell was placed in one arm of an AC bridge, which was balanced immediately after insertion of the blood. As the blood settled, the bridge became unbalanced. The unbalance voltage was amplified, rectified, and applied to a DC recorder running at a speed of eight inches per hour. The records obtained gave graphic pictures of the degree and rate of sedimentation.

Several cells were tried, the most successful of which is shown in Fig. 1. Four platinum strips, each 2.5 cm long, were mounted on the sides of the cell, and connected to individual lead wires. The cell was filled to the top of electrodes D. Fig. 2 shows the variations of resistivity as sedimentation occurred. Usually, electrodes C and D were connected to the bridge.

Various authors have measured sedimentation as a function of time and plotted the results. According to Rothe,[2] the curves usually have three regions: (a) "pre-agglutination" section including the first bend of the curve, (b) "agglutination sinking," represented by the linear portion of the curve, and (c) "sacking," the last part of the curve which is caused by a packing effect. According to Thygesen,[3] sinking occurs very slowly until the aggregates attain a certain size. Other workers, quoted by Thygesen,[3] believe that the maximum rate of sinking is important. The three regions are well-illustrated by curve H of Fig. 2.

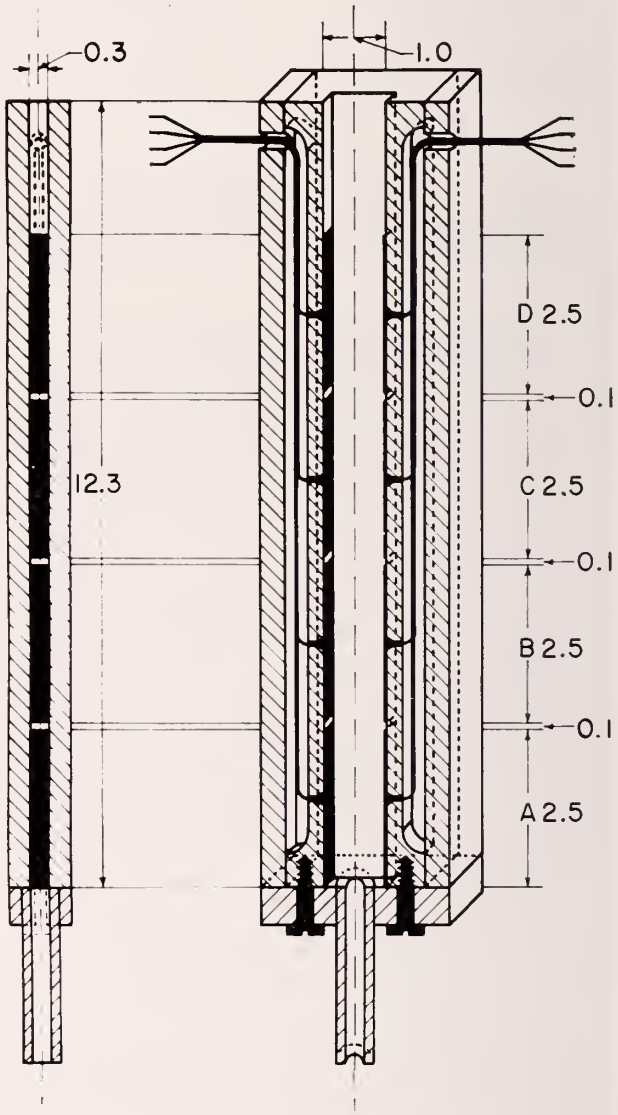


Fig. 1. The conductivity cell has a rectangular cross section, 1.0 by 0.3 cm. Four Pt. strips, designated A,B,C, and D are mounted on the narrow sides. Each strip is 2.5 cm long, and is separated from neighboring strips by 0.1 cm. Individual lead wires allow connecting the strips in different arrangements.

The first cell tried was a commercial type with one electrode above the other. This did not prove satisfactory because the blood-plasma interface was between the two electrodes. This resulted in an increase in resistivity above the initial value during the first phase, followed by decreasing resistivity during phase two. Another cell was constructed having the same dimensions

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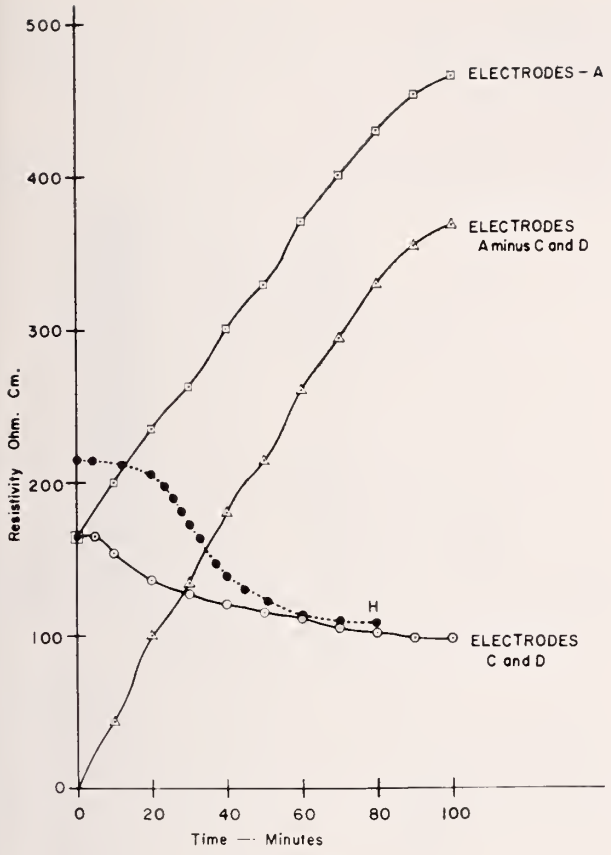


Fig. 2. Variation of resistivity of blood in the conductivity cell. At zero time, the cell was filled to the top of electrode D. With electrodes C and D connected to the bridge, the resistivity gradually dropped as sedimentation occurred. The initial value is the resistivity of unsedimented blood. With electrodes A connected, the resistivity increased as blood cells settled to the bottom. Subtracting the values for electrodes C and D from those for electrodes A gave a curve which started at zero ohm-cm. The curve labelled H was for a different blood sample, using electrodes C and D.

as the Wintrobe tube, with two strip electrodes separated from each other. This cell produced similar results as the cell of Fig. 1, but was less convenient to work with. In some cases, these cells also showed an initial increase of resistivity due to agglutination, but to a smaller extent. Partial results are shown in Table 1.

Three types of anticoagulant were used: potassium – ammonium oxalate (2.0), sodium heparin (0.2), and EDTA (1.0). The figures refer to concentrations in milligrams per milliliter of blood. The anticoagulants apparently affected the initial resistivity, since mean resistivities of blood using the above anticoagulants were 140, 200, and 175 ohm-cm, respectively. Since the experiments were done at various temperatures, the Wintrobe sedimentation rates and resistivities were corrected to 20°C. The sedimentation rates were adjusted using the graph of Wartman.[4] The resistivities were increased by 3 ohm-cm for each degree decrease in temperature, based on our own measurements of the temperature coefficient of blood.

It is possible by observation to measure directly the conventional sedimentation rate (fall of blood-plasma interface in 60 minutes). In Table 1, we have shown the maximum slope of the resistivity – time curve, as well as $\Delta\rho$, the fall in resistivity in 60 minutes. The coefficient of correlation between $\Delta\rho$ and the Wintrobe sedimentation rate at 20°C was r = 0.54. When the Wintrope sedimentation rate was also corrected for hematocrit, r increased to 0.61. The correlation coefficient between maximum slope and $\Delta\rho$ was –0.82.

The initial resistivity of the blood is proportional to hematocrit, type and quantity of anticoagulant used, plasma composition, and temperature. The low value of resistivity with oxalated blood was probably due to cell-shrinkage caused by this anticoagulant. For a given blood sample, there is a very high correlation between resistivity and hematocrit, although the relationship is not linear over wide ranges of hematocrit. For the data of Table 1, in which different blood samples were used, the correlation coefficient between resistivity and hematocrit was 0.83 for heparinized blood, and 0.94 for blood with EDTA. The relationship was considered as approximately linear over the small range of hematocrit observed.

Methods have been developed for measuring the hematocrit or coagulation of blood by impedance methods.[1,3,5–7] The cell shown in Fig. 1 can be used to obtain the resistivity of unsedimented blood, as well as to obtain records of the instantaneous changes of resistivity as sedimentation progresses. Hirsch, et al[1] found that the conductivity method gave more accurate values of total red blood cell count than the visual cell-count method. They found it necessary to use the conductivity of plasma as well as that of whole blood, and presented the following equation:

$$g = 10.49 \frac{K_o - K}{K_o + K} \qquad (1)$$

where g = millions of red cells per cubic mm, and K_o and K are the conductances of plasma and whole blood, respectively. The cell of Fig. 1 is well suited for use with this equation, since the plasma conductivity can be determined at the end of the sedimentation test.

Schwan[8] has developed equations for the resistance of a column of blood in a conductivity cell in which one electrode is mounted above the other. He used an equation developed by Maxwell,[9] as follows:

$$k_B = k_s \frac{1 - p}{1 + p/2} \qquad (2)$$

where k_B = conductivity of whole blood, k_s = conductivity of plasma, p is the ratio of cells to the total volume of blood. This is equal to hematocrit, when expressed as a ratio. Equation 2 was developed by Maxwell for a suspension of spherical particles, but Cole, et al[10] found that the equation holds very well for blood.

The cell shown in Fig. 1 differs from that used by Schwan in that the electrodes are along opposite walls instead of one above the other. Using a similar method of analysis, we have derived an equation for the conduc-

TABLE 1

RESULTS OF SEDIMENTATION EXPERIMENTS

1 *Expt. No.*	2 *Sex*	3 *Hct*	4 *T °C*	5 *Uncorr sed rate*	6 *ρ ohm-cm*	7 *Sed rate at 20°C*	8 *ρ at 20°C*	9 *Max slope*	10 *Δρ ohm-cm*	11 *Anticoag.*
1	M	38	24.5	19	126	17	140	−0.77	4	Oxalate
2	M	42	24.0	5	128	4	140	−1.02	22	Oxalate
3	M	47	26.0	1	173	1	191	−0.45	3	Oxalate
4	F	38	24.5	36	187	34	201	−5.21	96	Heparin
5	F	40	23.0	16	201	14	210	−4.55	64	Heparin
6	F	41	31.0	13	170	8	203	−1.41	36	Heparin
7	M	44	31.0	11	192	6	225	−4.02	54	Heparin
8	M	45	22.0	24	223	23	229	−4.94	58	Heparin
9	M	45	31.0	18	225	12	258	−7.50	77	Heparin
10	M	46	31.0	12	216	7	249	−1.27	35	Heparin
11	M	47	31.0	4	200	2	233	−2.36	0	Heparin
12	F	38	25.0	28	150	25	165	−6.06	72	EDTA
13	F	40	25.0	12	160	10	175	−4.80	84	EDTA
14	M	45	25.0	6	205	4	220	−3.29	80	EDTA
15	M	45	24.0		191		203	−0.57	16	EDTA
16	M	47	25.0		195		210	−0.60	18	EDTA

Col. 4: Temperature at which experiment was done. Col. 5: Wintrobe sedimentation rate at this temperature. Col. 6: Initial resistivity of blood at this temperature. Col. 7: Sedimentation rates of col. 5 corrected to 20°C. Col. 8: Resistivities of col. 6 corrected to 20°C. Col. 9: Maximum slope of curve of ρ vs time, in ohm-cm/min. Col. 10: Change in ρ in 60 minutes.

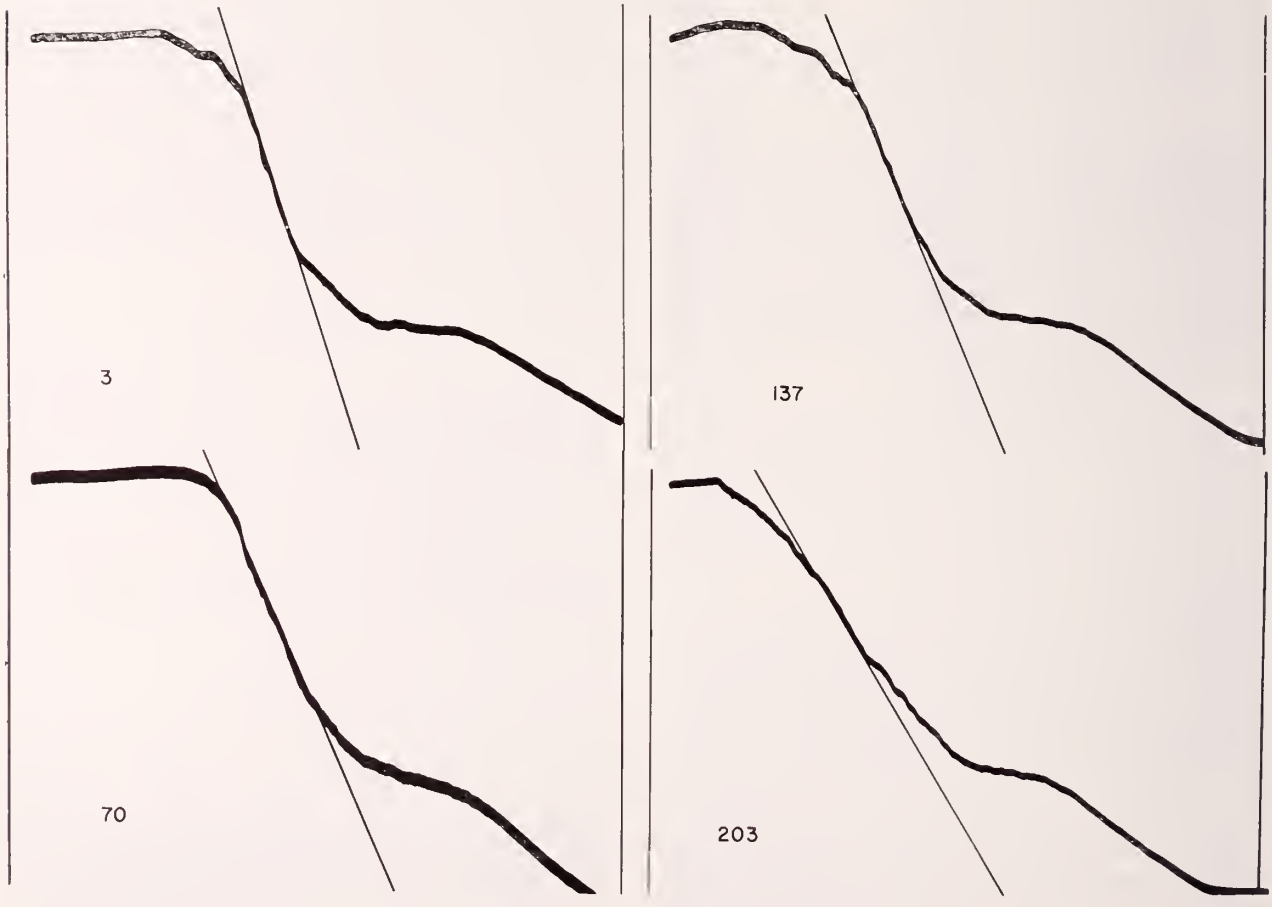


Fig. 3. Resistance-time curves obtained from the equipment. The ordinate is ohms, the abscissa is time – total 60 minutes. The number on each graph represents the time in minutes after the blood was drawn that the measurement was started. The maximum slope decreased as the time after drawing increased.

tance (reciprocal of resistance) between the two sets of electrodes in this cell:

$$G = \frac{b\,k_s}{w}\left[d - 1.5\,p_o h\,\frac{a - e}{a + 0.5\,p_o h}\right] \quad (3)$$

Here G is the conductance between opposite electrodes, mhos

b = depth of cell = 0.3 cm
w = width of cell = 1.0 cm
d = length of electrodes used
h = height to which cell is filled with blood
p_o = initial concentration of blood cells
a = distance from bottom of cell to blood-serum boundary.
e = distance to bottom of electrode used from bottom of cell

Ordinarily the tube is filled to the top of the top electrode, and the top two pairs of electrodes connected. Then d = 5, e = 5, and h = 10 cm. Putting values in equation 3, this becomes:

$$G = 1.5\,k_s\left[1 - 3\,p_o\,\frac{a - 5}{a + 5\,p_o}\right] \quad (3a)$$

Equation 3 gives the conductance for any degree of sedimentation, in terms of the conductivity of plasma, k_s, and the initial concentration of the blood, p_o. It is evident that when a = 5, G = 1.5 k_s, corresponding to the conductance of plasma alone. Also, when a = 10, equations 2 and 3a show that $g = 1.5k_b$.

Equation 3 assumes, however, that the concentration of the sedimented blood is uniform or linear, and this may not always be the case. Further research could be done on this point by constructing a cell similar to that shown in Fig. 1, but having numerous small electrode strips. The blood concentration could then be determined as a function of depth.

The data presented in Table 1 are preliminary only, since the main objectives of the experiments done so far were to obtain the best cell design, and to study the effects of temperature and anticoagulant on blood sedimentation. We believe that with uniform temperatures and the same anticoagulant, a better correlation between $\Delta\rho$ and sedimentation rate will be found. The curves of sedimentation as a function of time may provide additional information about the nature of the sedimentation process. Fig. 3 shows curves of resistance changes in 60 minutes for the same blood measured at various times after drawing.

Acknowledgment

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reached this level by 96 hours. This is rapid enough for prophylactic therapy. If rapid anti-coagulation is required, the immediate use of heparin is suggested. It has also been repeatedly shown[4] that despite early lengthening of the one-stage prothrombin time to a therapeutic range, the oral anti-coagulant agents fail to exert true anti-thrombotic effects for at least five days. This presumably is due to the time required to reduce clotting factors other than Factor VII to a sufficient degree. Therefore, despite the delay in the rate of fall of Factor VII, when a large dose of warfarin sodium is omitted, full anti-thrombotic effect is achieved just as quickly as when it is used.

Conclusions

The administration of large initial doses of coumarins is an unfortunate practice. Such doses predispose the patient to a hemorrhagic diathesis, delay the finding of a proper maintenance dose, and do not hasten the true anti-thrombotic effect. Using warfarin sodium, currently the most popular coumarin agent, one should institute anti-coagulant therapy with 10 to 15 milligrams per day for a three-day period.

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The Peripheral Nerve Repair

A Review

Jean J. Labelle, M.D. and Donald E. Allen, M.D.

This paper is mostly to remind us of a few basic elements of nerve repair which we encounter nearly every day in our medical practices. Some nerves have much easier regeneration and consequently very little or nothing is done about them with fairly good results; however, some other nerves are very touchy in their regeneration process. Sensory nerves, as a rule, tend to regenerate much better than motor nerves.

Anatomy

Nerves are made of myelinated fibers (axons) which are surrounded by a sheath of myelin covered with a second sheet of Schwann cells which constrict at intervals forming the nodes of Ranvier. These are usually in bundles forming funiculus which in turn form larger bundles called fascicles which in turn form the whole nerve. Fascicles usually contain only one mode of nerves; that is, either motor or sensory. The motor nerve will end on the end plates of the muscle fibers which will permit these fibers to constrict. The sensory axons will in turn end to a sensory organ, such as pressure, cold, heat, or touch receptors.

Pathophysiology

When a nerve is injured, different levels of injury may occur. H. J. Seddon has classified these injuries thus:

Group I: *Neuropraxia*

– In this group are placed the most minor nerve lesions. Clinically they are transient disturbances in which the motor element is prominent but this extends to loss of voluntary power without muscle wasting and without electrical changes. On the sensory side, there may be some subjective numbness but there is no anesthesia. The underlying lesion is a stretching or bruising of the nerve which may destroy the myelin sheath. Classical examples are the so called "crush palsy" or "Saturday night palsy." None of these require treatment and they all recover spontaneously.

Group II: *Axonotmesis*

– In this group are injuries with profound motor and sensory damage but with no actual severance of the nerve itself. The classic example is the severe compression injury such as that resulting from a tight cast over the peroneal nerve at the neck of the fibula. Here the injury is sufficiently severe to produce peripheral degeneration but the main architecture of the nerve remains intact. The axons are damaged leaving intact Schwann sheets. Regeneration is usually spontaneous and may be complete, but more or less lengthy.

Group III: *Neurotmesis*

– In this group are all injuries where the nerve has been severed and into this group falls the most serious nerve lesions.

We are here mostly interested in Group III in which full severance of the nerve has occurred. When such an injury has been produced, the wallerian degeneration begins immediately. This consists mostly of the degeneration of the axon to the first node of Ranvier and a change in the cell body in the ganglion proximally. Distally the axon will degenerate right up to the end organ. Within approximately ten days after the injury, the axon will start regeneration and the process of repair will occur. Once the gap has been bridged, formation of axoplasm is quite rapid (three to four millimeters per day); however, myelin is formed more slowly at approximately two millimeters per day. Subsequently, an adjustment at the terminal end organ must take place at which time another lapse of time must occur. This is on the motor side a recreation of an end motor plate and on the sensory side usually an ending of the nerve in the bare fashion without the recreation of a specialized organ. In short, there is usually a delayed period of three to four weeks prior to axon bridging the gap and a second lag period of as long as two to three months at the periphery. Clinically the following times have been quoted for return of protective sensation in the hand:

1. above wrist: average 13 months.
2. proximal palm: average 7 months.
3. distal palm: average 3 months.
4. proximal finger: average 2-3 months.
5. middle digit: average 1½ months.

Surgical Repair

Factors Influencing Nerve Recovery

1. Age: there seems to be an inverse relationship between nerve recovery after injury and the age of the individual.
2. Type of Nerve Injury: obviously patients with neuropraxia will do better than those with neurotmesis, etc.
3. Length of Gap: the longer the gap between the divided end of a nerve, the more extensive the surgery and the poorer the result.
4. Amount of Fibrosis: the greater the fibrosis, the greater the hinderance of recovery.
5. State of Local Nutrition: this is mainly concerned with blood supply.
6. Time Lapse Between Injury and Suture: generally

speaking, the optimal time for repairs is in the first six months after injury for subsequently conditions deteriorate and results are poor. End organs may degenerate completely, muscles may atrophy, and skin may do likewise.

7. Type of Nerve Involved: mixed nerves tend to do poorly as compared with pure nerves. This is because of lack of guiding forces to axons leading them into their original neural tubes. To some extent, the later is influenced by the accuracy of repair. Sensory nerves seem to do somewhat better than motor nerves.
8. Accuracy of Repair: in general, the more accurate the repair, the better the end result.

Of the above, two factors can be influenced by the surgeon. Of course, accuracy of repair is the most outstanding. Secondly, very often the amount of fibrosis can be greatly reduced by the surgeons in terms of proper debridement and changing an untidy wound into a tidy wound, reducing hematoma and infection.

Primary vs Secondary Suture

The life-long battle of primary vs secondary repair still goes on. H. J. Seddon, H. A. Brown, et al have long advocated a secondary repair. Sterling Bunnell was probably the first to advocate the primary nerve repair providing the wound was clean.

It is obvious today that more and more surgeons are doing primary repair providing the injury is a clean one or can be altered from an untidy wound to a tidy wound. It is obvious that repairing a nerve within an area that will form a lot of scar tissue will not give a good result.

Seddon advocated secondary nerve repair in all types of nerves except the accidently severed nerve at surgery, and digital nerves, as secondary repair in the latter is often difficult. Seddon advocates intraneural damage and crush at the periphery of the nerve end which is difficult to evaluate and resect at the time of primary suturing and will cause some fibrosis at the nerve anastomosis site. He also mentions the fact that the perineurium is very flimsy and that many times sutures will not hold properly in this tissue. Consequently, nerve gap will form. He also states that nerves that are repaired in joint areas (which is a very common occurrence) will stay in position when the joint is flexed; however, the moment the joint is extended separation occurs. He states that most of the primary repairs do not do well except for an incidental case here and there.

Bunnell, however, and all his advocates, wanted the primary repair for many reasons. Bunnell advocated the fact that most wounds could be made tidy by the surgeon by proper debridement and proper surgical closure. The crucial axial rotation of the nerve being so important, the vessels which are visible on the nerve on the primary repair but not on the secondary repair become a guide line to orient the axis of both cut ends. The fascicular pattern is also much more easily identifiable which is most important to the people who advocate intrafascicular suturing. Bunnell, to answer the argument of Seddon about joints, stated that many times when a secondary repair was done the joint was ankylosed and that it was impossible to flex it to relieve the tension on the anastomosis.

It is our opinion that primary repair should be done as much as possible; however, it is obvious that in untidy wounds this is unfeasible because of the amount of scar tissue formed. It is our feeling that even though a small amount of scar tissue will form, a neurolysis will often do wonders for this nerve conduction at a later date. It is also our feeling that a secondary repair means resection of the ends of the severed nerve that may or may not have been identified at the primary closure and this resection will cause a secondary wallerian degeneration which will also retard the axon growth pattern. The sooner a nerve can be repaired, the less damage from atrophy will occur at the peripheral organ and consequently the better the result, theoretically and in practice.

Surgical Repair

The most common repair used today is the tubing effect used by approximating the perineurium with some fine sutures without any inner approximation. The two main disadvantages that occur from this are the fact that the funicular bundles are not approximated exactly and consequently there may be a misorientation of axon growth into the wrong neural tubes; and secondly, the formation of scar tissue around the nerve which would subsequently cause essentially an entrapment neuropathy. This, of course, could be released by a neurolysis. More and more people are using magnification for such anastomosis which varies anywhere from a loupe that has X2-X6 magnifications to a microscope that has up to X25 magnifications.

Today a certain percentage of hand surgeons are doing so-called fascicular nerve anastomosis which essentially consists of some sutures in the fascicles in order to approximate each fascicle with its own counterpart, distally. This is usually done under a microscope using anywhere from 9-0 to 12-0 silk or nylon. Two disadvantages occur with this. First: the length of the procedure which can go into 5 and 6 hours implying usually tourniquet times of prohibitive length: Second: excess foreign body into the nerve which may cause more scarring. However, it seems that the neuroma formation is smaller and time will assess whether this is a better procedure or not.

Another approach to nerve anastomosis consists of course in the prevention of scar tissue attaching the anastomotic site to adjacent tissues. Micropore has been used, but now has been discontinued, as an agent that would permit blood supply to get to the anastomosis but not scar tissue. This micropore was removed usually 10 to 15 days later but the results were not substantially better. More recently an approach was to use a silicone tubing that Dr. Robert Midgley of Montreal has studied intensely. This was a small tube approximately a centimeter and a half long inserted around the anastomosis that did prevent fibrous tissue from attaching onto it and that did constrict the anastomosis enough to orient

the funiculi roughly with their own counterparts distally. This seems to give a very good orientation of the axon under microscopic examination on experimental models. The clinical results of this are yet incomplete; however, it is promising as a good agent. This silicone tube is usually removed sometime later after surgery between six to fifteen days, the latter being what we would advocate.

In cases where a large gap due to trauma or absence of portion of the nerve exists, then two possibilities appear. Nerve transfer which would consist of using a nerve of lesser importance in order to feed the nerve of more importance. The other possibility is a nerve graft to gap the defect. These have varying results, mostly poor, and should be used only in certain very specific instances. The facial nerves respond unusually well to this, especially to grafting.

In Conclusion

We advocate primary nerve suture except in untidy wounds and tend to go back more and more often later for a neurolysis in order to free the adjacent scar tissue which causes entrapment type of syndrome. Nerves are often associated with other injuries and consequently the complexity of the injury becomes usually dependent upon which other structures are involved, the amount of immobilization necessary, the amount of tissue damage, etc.

Resume

A very superficial review of anatomy, physiology, and nerve repair was presented in this paper as a reminder for the everyday type of management of the traumatic nerve injury. We advocate primary neurorrhaphy when feasible.

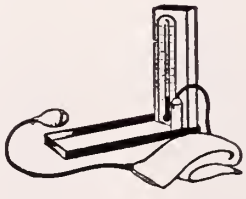
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Restoration of Functional Pinch After Traumatic Loss of the Four Long Fingers of the Hand

A Case Report

DONALD E. ALLEN, M.D., JEAN J. LABELLE, M.D. and LAWRENCE CRANE, M.D.

The ability of the hand to grasp or pinch is one of the most important functions of the hand. In order to perform this most basic function adequately, there must be present one mobile finger and a post upon which the mobile finger can oppose. To increase the function even further, one must have sensory pinch or sensation on both the opposing finger and also on the post to which the finger opposes. The following is a case report of the reconstruction of the right hand of a man who was injured in an industrial accident thereby losing all four of the long fingers of his hand through the metacarpal shafts together with almost complete denuding of the sensory skin from the wrist crease dorsally to the wrist crease volarly.

REPORT OF A CASE

A 23-year-old, right-handed white male was admitted to the Maine Medical Center after having sustained a severe crush injury to the right hand in an industrial accident. His physical findings on admission showed an almost totally denuded right hand with compound fractures of the second through the fifth metacarpals at the level of the mid-metacarpal shaft or proximally. The skin loss on the dorsal aspect of the hand was of the crush type and on the volar aspect the skin was absent. The initial treatment was an attempt to save these four long fingers with careful suturing of what fragments of skin were left, Kirshner wire fixation of the fractures, and split thickness skin grafting of the remaining skin defects. The thumb alone was uninjured. Within the first 12 hours after the initial surgery, it became evident that there was considerable vascular embarrassment to the fingers and stellate ganglion blocks were begun, being performed daily for the following four days. On the fifth hospital day, it was clearly apparent that the four injured fingers and the entire skin of the hand were no longer viable. The patient at that time was then started on daily dressings and the wait for the total demarcation of the necrotic tissue was begun.

On the 14th hospital day and after demarcation had been complete, the patient was taken to the operating room where an amputation of the four long fingers through the fracture sites of the metacarpals was carried out. He subsequently underwent dressing changes under anesthesia every other day until on June 17, 1971, a debridement of the right hand was carried out and a large infraclavicular pedicle graft was raised from the right anterior chest and applied to the right hand using split thickness skin graft from the thigh to cover the defect. This was allowed to remain undisturbed for the succeeding three weeks and on July 8, 1971, a release and setting-in of the pedicle graft on the right hand was carried out using all the available pedicle flap in order to secure extra tissue for the subsequent post which would have to be made.

A full five months was then allowed for this pedicle tissue to mature and obtain good circulation on its recipient site on the right hand. On December 6, 1971, the patient was then again taken to the operating room where under general anesthesia the long remanent of the second metacarpal was excised and was placed on the distal portion of the third metacarpal to act as a bone graft. This both deepened the web space between the thumb and the new post and was in effect the post itself. Coverage was affected this time by making two pedicle flaps out of the previously applied pedicle flap tissue and obtaining good coverage of the bone graft.



Fig. 1. Appearance of hand after coverage with pedicle flap completed.

The patient's course following this operation was completely uncomplicated and as healing progressed he developed better and better grasp. However, there was no sensation on the hand as one would expect with pedicle flap tissue, except for the uninjured thumb. Because his grasp and pinch were excellent, it was decided that further surgery should be done in order to try to provide sensation to the post upon which the thumb was opposing. Accordingly, on May 25, 1972, a neurovascular island pedicle graft utilizing the radial aspect of the right thumb was obtained and transferred to the post, using split thickness skin graft to cover the defect. This gave immediate sensation to the post and thus opposing sensory surfaces were finally achieved. The patient's postoperative course was uncomplicated with no difficulties with the neurovascular island pedicle and his sensation continues to be excellent.



Fig. 2. Establishment of post and coverage with pedical flaps out of previously applied pedicle flap tissue.



Fig. 3. Arrow points to neurovascular island pedicle in place on post. Note split thickness skin graft on thumb donor site.

Discussion

We have chosen to present this case because it demonstrates several principles which if utilized satisfactorily can be a great aid in the reconstruction of a functionless hand. The first principle is that of adequate skin coverage. Local pedicle flap tissue is certainly the most satisfactory tissue to use in covering defects on the hand. However, when this is not available, one has to use pedicle flap tissue from a distance and it is the opinion of the authors that an infraclavicular flap for coverage of the hand is far superior to the classical abdominal flap. The infraclavicular flap has much less fat and does not tend to gain fat as the patient's weight changes to the same degree that the abdominal flap does. The cosmetic defect in the infraclavicular area is certainly no greater than the same cosmetic defect on the upper abdomen which is the common site for obtaining abdominal flaps. Once the site of the pedicle flap for the reconstruction of the hand is determined, one must be absolutely certain that an adequate and if anything overlarge pedicle flap is raised in order to provide more tissue than is necessary just to cover the defect. This was done in this case and it was this excess of tissue that permitted the two pedicle flaps to be formed from the one original pedicle flap and thereby cover the newly created post. It should always be remembered, however, when using pedicle flap tissue, that pedicle flap tissue rarely attains protective sensation and thereby, from a functional standpoint, is usually asensory.

The second principle employed in the reconstruction of this hand is the use of available local tissue. Once satisfactory and complete skin coverage had been attained, the post in the reconstruction in this hand was obtained by using the second metacarpal and placing it on the distal portion of the remanent of the third metacarpal in order to provide a post which was at least as long as the thumb. Resection of the second metacarpal also permitted considerable deepening of the web space which was a necessary component to giving this hand a good grasp. It should be also remembered that in performing this kind of a bone graft for a post, the bone graft itself should be angled volarly to simulate the position of function of the post in order that the thumb may reach it. A perfectly straight post extending from the metacarpal out is very difficult for the thumb to reach and oppose, thus this metacarpal bone graft was angled at approximately 45 degrees from the line of the shaft of the third metacarpal in order to place the post well over into the position where the thumb could rotate around and oppose it.

The third basic principle employed in the reconstruction of this hand was the attaining of sensation on both the newly reconstructed post and the preserving of the sensation on the opposing aspect of the thumb. This was carried out by the use of a neurovascular island pedicle taken from the radial aspect of the thumb and transferred on its digital nerve and artery to the opposing

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Death and the Doctor

Bernard L. MacKinnon, M.D.*

One thing we can say with certainty about death is that we cannot get away from it. The Bible says, "In the midst of life we are in death," and while this is true for everybody, it is more true for physicians than for almost any other group. This doesn't mean, however, that we have come to terms with the fact of death any better than most other people have. In fact, it has been suggested by some that perhaps the very characteristics which have motivated us to become physicians may at the same time be characteristics which diminish our capacity to deal effectively with death and dying.

I am wary of attributing vocational choice to specific characterological flaws which lead a person into a given job as a defense. There is some truth in the notion, but it is rarely so simple as that. It is nonetheless possible that part of the force which drives us to choose medicine as a profession is the desire to control and conquer illness and death, and underneath intense desires often lie intense fears. That may be hard to accept, but it is easier to recognize that a personality characteristic of many physicians is an excessively strong drive towards mastery and control and an equally strong reaction to the loss of mastery and control. These are speculations or at least generalizations, but it is no speculation that many of us handle death and the dying patient badly. Dr. Charles Wahl, a psychiatrist at the University of California in Los Angeles, has somewhat flippantly proposed several common defense mechanisms utilized by physicians in this situation.[1] He calls them "games doctors play," and lists them as follows. 1. See no evil, hear no evil – which boils down simply to not perceiving the patient's fears of death, as a defense on the part of the doctor against having to be concerned about it. 2. File it and forget it – which differs from the previous defense only in the fact that the fear of death is recognized, but then is quickly denied and the patient is abandoned in the sense of depriving him of the opportunity to discuss his fears and his feelings. 3. You can't do this to me – a defense which reflects the unconscious attitude of some physicians that the dying patient has turned traitor and somehow has let the doctor down, resulting again in anger and abandonment. 4. I've done all I can – which may be true in one sense, but is often used by the doctor as a rationalization to salt the patient away at the end of the hall with IV's and oxygen going, and let him be, especially because in many instances such a patient may be selfish, infantile, demanding and ungrateful. 5. Take it away – is a game played by a physician who fears death and wants to wash his hands of all involvement with it. Often, after giving the bad news to the patient straight from the shoulder and in essence saying, "OK, this is your problem now, not mine."

Another way of looking at the ways in which physicians respond to death and dying is in terms of age appropriate responses.[2] For example, the young resident regards death as a marauder, an intruder. He resents it; he is angered by it, and he will often fight back with overly intensive therapeutic efforts in an attempt to keep death at bay. The middle-aged physician accepts death intellectually, but not emotionally. He often denies its reality through intellectualization which may be displaced into repeated and overly intensive investigations which he can obsess about in intellectual terms, or by unconscious avoidance such as, for example, arriving at the hospital when the patient is asleep and probably saying to the nurse in attendance, "Tell so and so that I've been by but he was sleeping." The elderly physician, with his increased personal acceptance of death as a natural life process, may become insensitive to the normal tensions in his patients and their families and in his staff. He may forget how traumatic dealing with the dying child is to the young nurse, or how fiercely the young resident is trying to keep his patient alive.

The essential thing here is for the doctor to scrutinize his own attitudes towards death and to recognize the games he might be playing or the maladaptive responses he might be manifesting to the detriment of his patients.

But what about the dying patient? How does he feel? What does he experience and how can we help him? Dr. Elisabeth Kübler-Ross of Chicago has written more on this subject than any other physician I know, basing her interviews on about 400 dying patients over a four-year period.[3] She says that all of these patients sensed the verdict before they were told and virtually all were eager to discuss it. Only three out of 400 denied their conditions to the end. She found that most of the unwillingness to discuss death was on the doctor's side. The patients who knew and accepted the verdict, however, maintained some hope and Dr. Ross defends their right to do this. In her discussions with the patient, she does not use such words as "cancer" and "death" unless the patient does first. Patients often talk about death in disguised ways and she permits them to do this. According to Dr. Ross, dying patients pass through seven stages of emotional adjustment, the progression of which can be helped by encouraging them to talk about their feelings. The stages are: 1. Shock – characterized by numbness, feelings of unreality and withdrawal, 2. Denial ("No, not me."), 3. Anger ("Why me," envy, complaints, etc.), 4. Bargaining (Pledges in return for rewards), 5. Depression (Reactive and preparatory grief), 6. Acceptance, and 7. Decathexis (Patient detaches self from environment and from intense investment in his own life.)

Of course there is, as usual, some degree of overlap

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and slipping back and forth between stages. Let us consider these various stages with some case examples.

Denial and anger were manifested in a very obvious way to me by a patient I remember dealing with as an intern. She was 32, a physician's daughter, dying of a malignancy, with a swollen abdomen as a result of hepatomegaly and ascites. On the right side of her abdomen one could see a series of faint horizontal ink marks, not all completely removed by bathing, marking the inexorable descent of her liver. She explained that her distended abdomen was due to pregnancy and manifested a bland innocence about anything serious being wrong with her. After about a month, however, her denial began to break down, though not overtly, and she became progressively more hostile, bitter and querulous, particularly towards one of her nurses who was pregnant, in striking contrast to the patient's own long unfulfilled desire for a child.

Another patient, a Mrs. B. referred to by Dr. Ross, demonstrates the phase of bargaining.[3] This patient related that she was dependent on injections to control her severe pain and could not leave the hospital. However, her oldest son was getting married and she was sad to think that she might miss his wedding. She was willing to make all sorts of promises if she could live long enough and be well enough to attend the wedding. As it happened, the doctors were able to teach her self-hypnosis, which helped her to control her pain for several hours at a time and she was able to attend her son's wedding looking radiant and claiming that she was the happiest person in the world. But on her return she immediately tried to strike a new bargain. "Don't forget," she said, "I have another son."

The phase of depression, of course, is one we are all cognizant of and see commonly. It is inevitable in almost all patients, but can be alleviated or at least be hastened in its progression by encouraging expression of grief, guilt, suppressed anger and loss, and often, either directly or through work with the family, by helping to build the patient's sense of the meaning of his life by realistically pointing out some of his positive accomplishments and attributes as well as by persistent emotional involvement with him.

Sometimes a family member or doctor can aggravate the situation tremendously in the stage of acceptance by continuing to offer the patient empty reassurance and by continuing to deny the reality of impending death when the patient has already accepted it. Dr. Ross quotes a case of a woman who was pushed much against her will by her husband to seek further surgery for her condition; surgery, which at the most would prolong her life for a short time.[3] She became psychotic, but in the midst of her confusion said to her doctor, "Talk to my husband, make him understand." The doctor helped the husband to look at his wife's needs rather than his own, and he was shocked to realize what he had done, expressing his new realization that part of the reason his wife had become psychotic was because it seemed to be the only way he had left her to get out of the surgery. He stopped pretending she was all right and she was able to share her feelings with him.

Special problems present themselves in treating the child, the adolescent, or the young adult who is dying. Here, the physician must use all his therapeutic skill with the greatest understanding, for the deaths of these patients confront him with one of his most difficult tasks. Denial is a normal emotional reaction to the prospect of death and this is generally much stronger in young patients.

The child six years old or younger has no clear conception of the finality of death. Very young children know that people die, but it only happens to other people, to the very old or in an accident. "Death comes with a boom or a splash and is something done to someone by someone else."[2] Death too means disappearance but its finality is hard to grasp. It seems reversible and this feeling is confirmed to some extent by childhood experiences, such as actors on television dying in one program and reappearing in another or, in real life, animals which die and are replaced very quickly. So since they do not have an anxiety provoking understanding of the significance of personal death, young children often die with comparative serenity. In these cases, the parents, the family and the treating personnel may need help more than the patient.[2]

Towards the latter half of the first decade of life the child begins to appreciate the emotional significance of death. What complicates fear of death in this age group (6-10) is separation anxiety. The physician's main task here, is to directly and through work with the family, reassure the patient that he will never be completely alone. Allow maximal visiting privileges, encourage letters, the presence of family photos in the room, etc. If you minimize separation, anxiety in these cases then denial and the other natural phases will be facilitated and the way to dying will be eased.[2]

For the adolescent, death is exceedingly traumatic. The meaning of death is appreciated, but the reality of personal death is not accepted. Because of the developmental struggles peculiar to adolescence, the adolescent is particularly subject to guilt and feelings that he has been punished. More than any other age group, the adolescent and young adult ask, "What have I done to deserve this?" In the solitude of death, the child can turn to others for health and comfort without shame, but the newly emancipated pseudo self-sufficient adolescent may have too much personal pride to allow himself this support, and it can be an exceedingly lonely experience for him. The common emotional reaction of the adolescent to death is increased conflict – the inner struggle over dependency and self-sufficiency, guilt and anger, loving and rejecting. In other words, an increase in normal adolescent turmoil occurs, depleting the psychic energy needed to face death. Dylan Thomas said, "Do not go gentle into that good night. Rage, rage against the dying of the light." The normal and specific reaction of the adolescent to the prospect of death is rage. The young adult feels that life is completely within his grasp, so death is seen as a ravisher and a destroyer. He feels understandably,

that death should come only to those who have lived completely. So the adolescent or young adult not only denies death, he actively fights against the possibility of it. The intensity of feeling that he experiences may aggravate his pain and make him a very difficult patient to deal with. His rage may tend to alienate the family and the physician.[2]

Now a few words about working with the family of the patient. The state of de-cathexis or detachment from the environment is often a very difficult one for family members and the physician can do much to help them at this time by adding to their understanding of the normalcy of this stage as he can also in the angry and recriminative stage by helping the family not to take the patient's hostility personally. The family is in mourning and some members may become seriously depressed. Irrational anger on the part of family members is often a problem. They may fight a good deal among themselves and may often irrationally blame the physician. They are often guilty, perhaps about the accident which is causing the patient's death, or for not seeking medical help for their child soon enough, or more often, guilty about aspects of their relationship with or feelings about the dying patient. The physician can be of great help here in promoting catharsis, clarifying, reassuring and helping them to recognize the source of their guilt and anger, and by putting or helping them to put these feelings into perspective. He can also assist by helping them to recognize how they may be displacing their anger onto others and by promoting more constructive outlets for these feelings.

Depression commonly involves loss, anger and guilt. The loss of a person, the loss of self-esteem; guilt that is often associated with ambivalence towards the dying patient; and anger which is often denied, suppressed and repressed, and is turned in large part against the self, compounding the guilt already felt. Encouraging recognition and expression of such feelings can help people significantly, not only in getting them through the patient's death and dying, but also in avoiding serious depression afterwards.

The staff on the ward often needs help also. Frequently they become anxious and uncertain in the face of death and some people cope with it by hardening themselves, by becoming callous and insensitive, by arguing among themselves, by venting their feelings on patients and perhaps by avoidance and abandonment of the dying patient. The physician does well to recognize these factors and often an appropriately placed and open conference or conferences can defuse the situation early and result in better working relationships among the staff and better care for the patients.

In conclusion and to summarize the recommendations for dealing with the dying patient, the doctor's question to himself about the dying patient should not be "Do I tell the patient?" but "How do I share my knowledge with him?"[3] Listen for clues. Allow some hope. Allow the patient his defenses. Don't abandon him. Adopt a persistent nurturing role and tell him the truth if and when he lets you know that he is ready for it. As Dr. Ross says, "We never break down the patient's defenses until the patient gives us the cue."[3]

In this way, we may not often be able to say as Malcolm said of Macbeth, "Nothing in his life became him like the leaving it," but we will help many more of our patients to die with dignity and above all in peace.

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President's Address*

Linus J. Stitham, M.D.

I suppose a presidential address should look with approval upon what little may have been accomplished and view with alarm all that remains to be done. In attempting to assess my past year in this office, I am left with some sobering thoughts. I have not been able to accomplish all the things I had hoped to, but then, one seldom does. I think however, we have made some progress. In the last few years, we have remodeled our constitution and bylaws. We have changed our Council to an Executive Committee and it seems to be working rather effectively. We have instituted some changes with regard to nominations, elections and succession of office which I think will eventually redound to the benefit of the Association.

For example, I might state the probability that I am the last President you will have who will have inherited the job simply "by going through the chairs" – and I think this is good.

We have hopefully opened up the potential line of ascension to younger doctors. We have made overtures towards them and made efforts to get them involved in that nasty subject of "Medical Politics" and I feel we have had some degree of success.

Probably there is no more misused or no more trite phrase than the current one to the effect that *these are times of change*. Of course, every generation has felt the same way. However, with the speed and rapidity of communications, it does indeed seem that things are changing faster, but perhaps this is only due to my advancing age.

A few months ago, I had occasion to address a group of labor leaders at the University of Maine in which I made the observation that my presence there in front of them on that particular day was a little unique, in that the President of the Maine Medical Association should be addressing a group of labor leaders and suggested that some of my more reactionary colleagues might well feel that we were – or should be – mortal enemies. I commented that on the contrary, I found it interesting to note that with what is happening to health care in general and to doctors in particular that there exists a small but growing sentiment among our profession that what we really need is a good strong union and some smart labor leaders like themselves to fight our battles with "Big Brother" and/or "Uncle Sam." I suggested that while I was aware that the AMA was considered by many of them to be a rather strong union, that if this were truly so, they would not now be losing membership. Since I made these observations, those of you who read "The Doctors' Bible" – that is, the magazine *Medical Economics,* are well aware that there has been a growing interest in the formation of some type of a medical union. They reported that in a recent survey, 61% felt doctors should join a union now. I think perhaps we should indeed begin to address ourselves to what we would do if we found ourselves faced with an intolerable situation in which to practice medicine. Historically, in England, the profession tended to speak rather ineffectively with fragmented voices and was eventually forced to comply, giving in rather meekly to government edict. I don't know whether or not we could justify the withholding of our services as some doctors in other countries have attempted, but somewhere in between these two extremes, I feel we should be giving some thought to workable alternatives. I noted with interest a recent comment by the AMA President in which he said that one alternative to striking might be to stop making out forms. He observed that a bureaucracy of any kind lives on paper work. It cannot function without reams of data, what was provided, what the charges were, etc. He suggested that we might go on treating patients as usual, but refuse to give third parties any information – to simply refuse to forward itemized bills or fill out forms. We would tell the patients what our services were worth. They would pay or not. If they could and would – fine. If not, we would be no worse off financially than if we had gone out on strike, as labor unions do. The bureaucratic system would just grind to a halt, while the medical care system would continue to function. To me this is a most intriguing idea. Perhaps it is time that the AMA or some similar organization concerned itself with what we are already accused of concerning ourselves with; namely, the politics or socio-economics of medicine and leave perhaps to some other organization the exchange of scientific knowledge which originally motivated the formation of the American Medical Association. It seems to me that it is going to be very difficult for medical societies to continue all these varying functions. I believe we do need some sort of subsidiary organization which would function primarily for the purpose of collective bargaining. This organization should have flexibility and toughness and devote itself to promoting the enlightened self-interest of physicians.

As I have traveled throughout the State attending meetings – Blue Cross-Blue Shield, Health and Welfare, Fiscal Intermediaries, Nurses' Associations, etc., I have been left with the very frightening but very realistic impression that those who are now either in control of, or rapidly becoming in control of our health services, ferverently *wish that we as doctors would just silently go away.* I think I might catergorize these people as the parahealth group. This would include the nurse educator

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*Presented at the 1972 annual session of the Maine Medical Association.

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The following patient profiles represent typical clinical situations, but do not necessarily represent actual cases.

Age 22, previously normal menses with occasional menorrhagia. Now on a sequential O.C. for four month Complains of heavy flow, occasional intracyclic bleeding, edema, tender swollen breasts.
Indicates estrogen excess.
1st choice: Switch to a combination 50-mcg.-estrogen O.C. (such as **Demulen**®).

Age 19, small breasts, minor hirsutism, oily hair and skin. History of metrorrhagia, skipped or scanty menses. New user.
Indicates androgenic excess or estrogen deficiency (fertility is suspect).
1st choice: An estrogen-dominant O.C. (such as **Enovid-E**®).

Age 25, average frame, poor complexion. No problem with menses, normal para 1. On a low-estrogen/high-progestogen O.C. for two years. Now complains of scanty flow, decreased libido, depression.
Indicates probable buildup of progestogen-related side effects.
1st choice: Switch to a center-spectrum O.C. with more estrogen, less progestational activity (such as **Ovulen**®).

Age 21, short, mammose, with normal menses, some acne. Was put on prenuptial regimen of 50-mcg.-estrogen/moderate-progestogen O.C. for two months. Now has increased acne.
Indicates metabolic production of androgen or relative estrogen deficiency.
1st choice: Switch to a 100-mcg.-estrogen combination (such as **Enovid-E**® or a sequential).



Unmasked, physiologically and anatomically, they're not all the same. A basic difference lies in their hormone profiles. One may secrete too much estrogen, another not enough...or perhaps too much androgen; the vast majority would fit somewhere into the broad center spectrum.

Although the profiles described below may not be completely predictive, in optimal O.C. selection, the estrogen-progestogen activity ratio should be carefully matched to the patient profile. Searle offers you O.C.s in a range not only suitable for your patients in the balanced center spectrum, but also adaptable to the patient with another type of hormone profile.

Oral contraceptives are complex medications. Among the commonly reported adverse reactions are: intracycle bleeding, fluid retention, tender or swollen breasts, exacerbation of acne condition, changes in libido, amenorrhea while on medication and upon discontinuance, nausea, leg cramps, headaches, weight gain. Therefore, after reference to the prescribing information, oral contraceptives should be prescribed with care.

*Note: In some patients any level of exogenous estrogen or progestogen may produce symptoms of excess hormone activity.

Age 25, tall, slender, athletic, with flat chest. On a progestogen-dominant 50-mcg.-estrogen O.C. Has recurrent trichomoniasis and Monilia.

Indicates estrogen deficiency and excess of progestogen in current O.C.

1st choice: Switch to a combination pill with 100 mcg. estrogen and less progestational activity (such as **Enovid-E*** or **Ovulen*** or a sequential).

Age 23, "Miss America" figure, previously normal menses, healthy skin and hair. On a 50-mcg.-estrogen pill for four months. Complains of intracyclic bleeding.

Indicates probable need for more estrogen.

1st choice: Switch to a center-spectrum O.C. with more estrogen and moderate progestogen dominance (such as **Ovulen***).

Age 21, college senior, average build. On highly progestogen-dominant/low-dose-estrogen O.C. for six months. Now complains of amenorrhea, between-cycle headaches, weight gain.

Indicates probable progestogen excess.

1st choice: Switch to a center-spectrum pill (such as **Ovulen***).

Age 27, slightly overweight, multiparous. Nausea with all three pregnancies and with a sequential O.C. three years ago. Has premenstrual fluid retention and leg cramps.

Indicates probable excess of estrogen.

1st choice: A 50-mcg.-estrogen/progestogen-dominant pill (such as **Demulen***).



Ovulen® a balanced center-spectrum O.C. for most

Each white tablet contains ethynodiol diacetate 1 mg./mestranol 0.1 mg.

Demulen® a moderately progestogen-dominant O.C. for many

Each white tablet contains ethynodiol diacetate 1 mg./ethinyl estradiol 50 mcg.
Each pink tablet in Ovulen-28® and Demulen®-28 is a placebo, containing no active ingredients.
Both Ovulen and Demulen are available in 21- and 28-pill schedules.

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Where "The Pill" Began

For a brief summary of prescribing information, please see next page.

a family of O.C. products to help you match the right pill to the right patient

Ovulen®

Each white tablet contains
ethynodiol diacetate 1 mg./mestranol 0.1 mg.

Demulen®

Each white tablet contains
ethynodiol diacetate 1 mg./ethinyl estradiol 50 mcg.

Each pink tablet in Ovulen-28® and Demulen®-28 is a placebo, containing no active ingredients.

Actions – Ovulen and Demulen act to prevent ovulation by inhibiting the output of gonadotropins from the pituitary gland. Ovulen and Demulen depress the output of both the follicle-stimulating hormone (FSH) and the luteinizing hormone (LH).

Special note – Oral contraceptives have been marketed in the United States since 1960. Reported pregnancy rates vary from product to product. The effectiveness of the sequential products appears to be somewhat lower than that of the combination products. Both types provide almost completely effective contraception.

An increased risk of thromboembolic disease associated with the use of hormonal contraceptives has now been shown in studies conducted in both Great Britain and the United States. Other risks, such as those of elevated blood pressure, liver disease and reduced tolerance to carbohydrates, have not been quantitated with precision.

Long-term administration of both natural and synthetic estrogens in subprimate animal species in multiples of the human dose increases the frequency of some animal carcinomas. These data cannot be transposed directly to man. The possible carcinogenicity due to the estrogens can be neither affirmed nor refuted at this time. Close clinical surveillance of all women taking oral contraceptives must be continued.

Indication – Ovulen and Demulen are indicated for oral contraception.

Contraindications – Patients with thrombophlebitis, thromboembolic disorders, cerebral apoplexy or a past history of these conditions, markedly impaired liver function, known or suspected carcinoma of the breast, known or suspected estrogen-dependent neoplasia and undiagnosed abnormal genital bleeding.

Warnings – The physician should be alert to the earliest manifestations of thrombotic disorders (thrombophlebitis, cerebrovascular disorders, pulmonary embolism and retinal thrombosis). Should any of these occur or be suspected the drug should be discontinued immediately.

Retrospective studies of morbidity and mortality conducted in Great Britain and studies of morbidity in the United States have shown a statistically significant association between thrombophlebitis, pulmonary embolism, and cerebral thrombosis and embolism and the use of oral contraceptives. There have been three principal studies in Britain[1,3] leading to this conclusion, and one[4] in this country. The estimate of the relative risk of thromboembolism in the study by Vessey and Doll[3] was about sevenfold, while Sartwell and associates[4] in the United States found a relative risk of 4.4, meaning that the users are several times as likely to undergo thromboembolic disease without evident cause as nonusers. The American study also indicated that the risk did not persist after discontinuation of administration and that it was not enhanced by long-continued administration. The American study was not designed to evaluate a difference between products. However, the study suggested that there might be an increased risk of thromboembolic disease in users of sequential products. This risk cannot be quantitated, and further studies to confirm this finding are desirable.

Discontinue medication pending examination if there is sudden partial or complete loss of vision, or if there is a sudden onset of proptosis, diplopia or migraine. If examination reveals papilledema or retinal vascular lesions medication should be withdrawn.

Since the safety of Ovulen and Demulen in pregnancy has not been demonstrated, it is recommended that for any patient who has missed two consecutive periods pregnancy should be ruled out before continuing the contraceptive regimen. If the patient has not adhered to the prescribed schedule the possibility of pregnancy should be considered at the time of the first missed period.

A small fraction of the hormonal agents in oral contraceptives has been identified in the milk of mothers receiving these drugs. The long-range effect to the nursing infant cannot be determined at this time.

Precautions – The pretreatment and periodic physical examinations should include special reference to the breasts and pelvic organs, including a Papanicolaou smear since estrogens have been known to produce tumors, some of them malignant, in five species of subprimate animals. Endocrine and possibly liver function tests may be affected by treatment with Ovulen or Demulen. Therefore if such tests are abnormal in a patient taking Ovulen or Demulen, it is recommended that they be repeated after the drug has been withdrawn for two months. Under the influence of progestogen-estrogen preparations preexisting uterine fibromyomas may increase in size. Because these agents may cause some degree of fluid retention, conditions which might be influenced by this factor, such as epilepsy, migraine, asthma, cardiac or renal dysfunction, require careful observation. In breakthrough bleeding, and in all cases of irregular bleeding per vaginam, nonfunctional causes should be borne in mind. In undiagnosed bleeding per vaginam adequate diagnostic measures are indicated. Patients with a history of psychic depression should be carefully observed and the drug discontinued if the depression recurs to a serious degree. Any possible influence of prolonged Ovulen or Demulen therapy on pituitary, ovarian, adrenal, hepatic or uterine function awaits further study. A decrease in glucose tolerance has been observed in a significant percentage of patients on oral contraceptives. The mechanism of this decrease is obscure. For this reason, diabetic patients should be carefully observed while receiving Ovulen or Demulen therapy. The age of the patient constitutes no absolute limiting factor, although treatment with Ovulen or Demulen may mask the onset of the climacteric. The pathologist should be advised of Ovulen or Demulen therapy when relevant specimens are submitted. Susceptible women may experience an increase in blood pressure following administration of contraceptive steroids.

Adverse reactions observed in patients receiving oral contraceptives – A statistically significant association has been demonstrated between use of oral contraceptives and the following serious adverse reactions: thrombophlebitis, pulmonary embolism and cerebral thrombosis.

Although available evidence is suggestive of an association, such a relationship has been neither confirmed nor refuted for the following serious adverse reactions: neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis.

The following adverse reactions are known to occur in patients receiving oral contraceptives: nausea, vomiting, gastrointestinal symptoms (such as abdominal cramps and bloating), breakthrough bleeding, spotting, change in menstrual flow, amenorrhea during and after treatment, edema, chloasma or melasma, breast changes (tenderness, enlargement and secretion), change in weight (increase or decrease), changes in cervical erosion and cervical secretions, suppression of lactation when given immediately post partum, cholestatic jaundice, migraine, rash (allergic), rise in blood pressure in susceptible individuals and mental depression.

Although the following adverse reactions have been reported in users of oral contraceptives, an association has been neither confirmed nor refuted: anovulation post treatment, premenstrual-like syndrome, changes in libido, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, fatigue, backache, hirsutism, loss of scalp hair, erythema multiforme, erythema nodosum, hemorrhagic eruption and itching.

The following laboratory results may be altered by the use of oral contraceptives: hepatic function: increased sulfobromophthalein retention and other tests; coagulation tests: increase in prothrombin, Factors VII, VIII, IX and X, thyroid function: increase in PBI and butanol extractable protein bound iodine, and decrease in T^3 uptake values, metyrapone test and pregnanediol determination.

References: 1. Royal College of General Practitioners. Oral Contraception and Thrombo-Embolic Disease, J. Coll. Gen. Pract. *13*:267-279 (May) 1967 **2.** Inman, W. H. W., and Vessey, M. P. Investigation of Deaths from Pulmonary, Coronary, and Cerebral Thrombosis and Embolism in Women of Child-Bearing Age, Brit. Med. J. *2*:193-199 (April 27) 1968. **3.** Vessey, M. P., and Doll, R. Investigation of Relation Between Use of Oral Contraceptives and Thromboembolic Disease. A Further Report, Brit. Med. J. *2*:651-657 (June 14) 1969. **4.** Sartwell, P. E., Masi, A. T., Arthes, F. G., Greene, G. R., and Smith, H. E. Thromboembolism and Oral Contraceptives. An Epidemiologic Case-Control Study, Amer. J. Epidem. *90*:365-380 (Nov.) 1969

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norethynodrel 2.5 mg./mestranol 0.1 mg.

Actions – Enovid-E acts to prevent ovulation by inhibiting the output of gonadotropins from the pituitary gland. Enovid-E depresses the output of both the follicle-stimulating hormone (FSH) and the luteinizing hormone (LH).

Indication – Enovid-E is indicated for oral contraception.

The *Special Note, Contraindications, Warnings, Precautions* and *Adverse Reactions* listed above for Ovulen and Demulen are applicable to Enovid-E and should be observed when prescribing Enovid-E.

Enovid-E®

brand of norethynodrel with mestranol

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Where "The Pill" Began

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types, the primarily social workers, sociologists, psychologists, case workers, and all those who have become experts in grantsmanship – that very doubtful and salubrious field of endeavor which exists to perpetuate ones self and ones salary by ever enlargening ones pseudo-role. I repeat, I am left with the very distinct impression by these people that there should be some way they could do away with doctors – those obstinate, recalcitrant and reactionary characters who insist on having something to say about the care of the patient. If they could but subordinate further our role, the health care problems of this country would be much more amenable to solution. In their mind we – you and I – are the obstructionists. Now I am not unaware of the new so-called team approach to the rendering of health care, and I am not opposed to the principle but . . . *I shall continue to insist that the leader of that team be a physician!* But, where do we find these leaders? Unless we assume a role in health care which to some degree we have abdicated because of our involvement with our own individual practices; unless we can become extremely active and meet the demands of the public – both those demands that are justified and those demands they are told to make by the parahealth types, we are in *real big trouble!* One possible approach suggests itself. For a number of years now, I have been advocating implementing our Association staff with an assistant to Dr. Hanley or someone, perhaps a lawyer, who could be our ombudsman with all the ever-proliferating government agencies . . . titles 19 and 20, A agencies, B agencies, intermediaries, etc., etc., ad nauseam. The day when your elected officials could cope with this ever-increasing nightmare is long since gone. I believe we must raise our dues *substantially* and hire someone to represent us . . . moreover, our House of Delegates should probably meet at least every other month to try to keep on top of the situation. The individual doctor can no longer practice medicine as he or she feels best and remain aloof from changes in the body politic. The public has a way of getting what it wants and if they are told what they want over and over again by these same people to whom I have referred, sooner or later these demands will become the law of the land – and our way of practice will go down the drain for in the minds of many people, organized medicine today represents the forces of reaction in health care, rather than the forces of constructive leadership. Now if this belief, regardless of its merits, becomes a majority belief, than what do we do? Shall we become conformists or do we face a future of discord and confrontation? To prepare for this confrontation should it come, we must be prepared to speak from confidence. Now, if we are honest with ourselves, we have to accept the fact that there is room, a great deal of room, for self-regulation and self criticism within our profession. For years, we have rendered lip service to the fact that there were "a few bad apples in our profession," but any of you who have had experience with Peer Review and have perhaps noted some of the atrocious charges that have been made for physicians services to third-party payers, must surely recognize the fact that we have a number of "bad apples" or at the very least, a number who are "slightly spoiled."

The possible groundwork for correction of this situation has already been laid in our State by the formation and activation of a Peer Review Committee. Unfortunately, I suspect that many of the doctors in our State still haven't the vaguest idea what Peer Review means. What it really means is appropriate evaluation of our activities by other doctors without any contractual relationship to the government or other third parties. This concerns an evaluation of the necessity and the effectiveness of the care we have rendered, as well as its quality. This Peer Review Committee has a tremendous responsibility. Like Caesars' wife, it must be above suspicion and it must somehow merit the total acceptance and wholehearted cooperation of every single doctor within the State. There is a statement which is currently very popular with many of the parahealth types, to wit: "Good Medical Care is a Right – Not a Privilege." I believe this statement requires some clarification. Just what are they talking about? Does this right include around-the-clock access to physicians? Does it mean sophisticated facilities in each and every small community hospital with a full range of specialists everywhere? To me, it would be much more appropriate to have the statement read "Good Medical Care Must be *Available* to Everyone" for there will always be variations in care – just as there are differences between Volkswagens and Cadillacs. However, we should go one step further than just the mere delivery of medical care. We must do everything we can to bring to the public the facts of good health. As you well know, this involves much more than medical services. We must emphasize that it includes adequate nutrition, housing, stable mental health and good educational resources. We must pay attention to all these societal factors which are all too frequently present among our disadvantaged neighbors whose problems begin in the slums – both rural and urban. We must elaborate and emphasize environmental protection, inadequate general health education, automobile accidents, drug abuse, cigarette smoking, alcoholism, to name but a few. It is our appropriate role to lead in concerted efforts to attack these problems – for all too often most Americans feel that new programs of government financing *alone* will take care of all the problems facing us in the health care field.

Now if I may switch rather abruptly from the general and the philosophical to some of the more specific problems we face – I think most of us recognize that there is a shortage of physicians within our State. It is perhaps debatable whether this is a true shortage or a relative one for there may be simply a maldistribution of physicians. In the county in which I live and practice, we had twenty-five years ago, 25 physicians. Today we have only 11, with the average age just slightly above 60 and this includes both Osteopaths and M.D.'s. The newest physician in our area came seventeen years ago.

Most people with whom I have discussed this problem believe that with the possible exception of psychiatrists and anesthesiologists, there are already a sufficient

number of specialists in all specialties including most of the subspecialties in the larger medical centers throughout the State. The problem is that we have fewer people to render primary care in the rural areas. We must recognize that here in Maine we have the same problems that are found nationally, plus a few of our own. We are primarily a rural State – just under one million people in a large land area which makes it difficult to attract physicians to regions where they are most needed. We have just over one thousand practicing physicians – but half of them are located in 3 or 4 urban areas. The remaining fifty percent are scattered throughout the rest of the State but very few can be found in towns of less than five to ten thousand population. To further compound our problems, for a number of reasons (a major one being a lack of a medical school) Maine has the smallest number of medical students per capita of any state in the union. In the past two or three years, we have been working very closely with the Regional Medical Program in its rather imaginative concept of a medical school without walls. We believe that we need many more family practitioners or primary physicians. Some of us feel this proposed Maine college of physicians can and will produce this kind of a doctor. Recently, this last spring, a group of seven Executive Committee Members, made a trip around the nation checking into some of these new kinds of medical schools. When we left Maine, this group included some who were enthusiastically in favor of the program and some who were equally opposed, feeling that all we could possibly turn out in such a school would be second-class physicians. At the end of the trip, every single one of these doctors felt that there was a real possibility that some such program similar to the proposed medical school without walls would indeed work in our State. I think here that we must digress for a moment and point out that already, in the only institution in Maine now training M.D.'s, namely the Maine Medical Center in Portland, that a terrific job is being done. During this past year, for example, they have provided outstanding postgraduate training for thirteen interns and forty-seven residents, plus complete education of twenty-odd junior and senior medical students. However, I think it should be carefully noted here that they are primarily training specialists and this, I submit, is not what the State of Maine needs. Most objections to the RMP program have emanated from the Portland area and have emphasized their concern that this school would train second-class physicians. I am not sure what the appropriate terminology should be. Why can't we admit that in the eyes of most patients, the government and the profession itself, we already have two classes of physicians, namely the specialists and the generalists whose income, fees, and status, if you will, differ. Speaking as a G.P., this doesn't disturb me at all. I think I know a little bit about a lot of things and will accept the fact that specialists know a lot about a few things. Whatever the title, be it family practitioner, primary physician or G.P., I think there is general agreement that this is the type of physician that we need. I further think such physicians can be trained! It is my contention that it is possible to choose medical students, not necessarily completely scientifically oriented students, who have a keen interest in family practice. There are tests, there are examinations, there are procedures that we feel can be used to determine these potential doctors. On our trip to Georgia, which has an outstanding program along these lines, we found great emphasis placed on the fact that they felt they could identify those students who were *"People Oriented"* as opposed to those who were "Science Oriented." Now it is my premise that we already have a sufficient number of students who are science oriented, but not enough of those students who are people oriented. Another thing I think is overlooked in discussions of these problems, is that although the University of Vermont program at the moment has some thirty Maine students enrolled, for which the Maine legislature generously provides a five thousand dollar per student subsidy, we as an Association have no control over the type of students entering this or any other school. In this proposed medical school without walls, *hopefully* we might have something to say about the type of student who is enrolled. If any of you have children who are interested in medicine, I am sure that you are aware of the difficulty in getting accepted into medical school. There are at least two qualified candidates, qualified by every standard that one might use, to become a doctor, but the medical schools are choosing those students that they have found from experience will complete their courses. This does not necessarily mean that these students will make good doctors or will be, if you will, "People Oriented" physicians. Many potentially good family doctors never get beyond enrolling in a premed course when faced with the need for top grades in science courses. For while medical schools render lip service to desiring "The Well-Rounded Student," the Lord help you if you haven't had all ump-teen physics and chemistry courses, with appropriate grades, which you will rarely, if ever, use in medicine unless in research. Many excellent liberal arts majors who may well be better able to communicate with the patient, are not even considered. Most admission committees today see their role primarily as selecting those prospective students who will be able to complete the course. Apparently, they do not feel responsible for predicting the quality of the doctor who will graduate four years later, but feel they can only be expected to predict with some degree of certainty that he *will* graduate, and perhaps predict his performance during his first year or two of medical school. If you will think back to your own medical school days, I am sure you will recall a number of the top men in your class who indeed got high grades but whom you might be somewhat reluctant to have care for you.

It seems to me that we have a tremendous opportunity to explore a new dimension in medical education here in Maine. As a general rule, the State of Maine has not been a leader in anything, but I think here that we could take the lead in developing some school such as I have discussed. For somewhere, pretty soon, in this country, there is going to be established a true school for health care.

This school is going to include educational opportunity for a variety of health careers. It is going to be able to take into consideration various levels of performance, varying degrees of intellect and of competence. I can visualize some of these graduates becoming practicing physicians, and some going on to become what we might term academic or research oriented physicians. They might start out as physician assistants or associates, pediatric nurse practitioners such as we already have, dental hygienists, laboratory technicians, etc. All of the courses in this dream school will be arranged so that they will offer upward mobility and one could proceed from one level of training to another, depending upon successful performance in areas of attainment. This will be a most unusual school. It will be extremely hard to manage. It will be very fundable since it will exemplify that which appeals to the Federal Government and Health and Welfare in particular. It will have a great deal of opposition, but it really could provide an answer to some of the problems facing the health career field today. Since this school will begin somewhere, sometime soon, why not here in Maine?

In our House of Delegates yesterday, we overwhelmingly supported the need for and the urgency of implementing a Medical School for Maine. However, the mere mention of this action on page five of the local papers is of no value. If information received from University sources is accurate, the proposed medical school is now on dead center. What is needed is a firm commitment from the profession and a good deal of missionary work among taxpayers and legislators. For while seed money is apparently available to start this school, it will be necessary to demonstrate where subsequent monies may be derived, and for this, I feel we need some type of dedicated revenue, perhaps a small tax on soft drinks as has been successfully employed for medical school support in West Virginia. Some such type of approach deserves our complete and dedicated support.

Now to descend from my rhetoric and if you will, impossible dreams, I cannot close without reiterating what everyone of my predecessors has said, namely that we are indeed blessed with an association office staffed with dedicated and extremely capable individuals; to wit: Mr. Medicine in Maine, Dr. Daniel Hanley and his charming, strong right arm, Mrs. Patricia Bergeron.

I am well aware that what I am about to say will sound pretentious, but this concludes what I would like to think of as my first twenty-five years of service to medicine in Maine, and although nothing is as dead as (or perhaps should be as dead as) a Past President. . . . God grant I may have a few more years to devote towards the greatest of all professions which you and I share. For as has been said . . .

> "There are men and classes of men that stand above the common herd; the soldier, the sailor, and the shepherd not infrequently; the artist rarely; rarelier still the clergyman; the physician almost as a rule. He is (such as it is) the flower of our civilization."

50 Main Street, West, Dover-Foxcroft, Maine 04426

RESTORATION OF FUNCTIONAL PINCH AFTER TRAUMATIC LOSS OF THE FOUR LONG FINGERS OF THE HAND: A CASE REPORT – *Continued from Page* 168

surface of the thumb. One must remember when performing this operation that meticulous technique is an absolute requirement in the dissection. On this particular hand, there were only two functioning digital nerves left, and to take one as a neurovascular island pedicle and transfer it to the post, one had to be absolutely certain that no injury was done to the remaining digital nerve serving the ulnar aspect or opposing surface of the thumb. It should also be noted that the bigger the neurovascular island the greater the area of sensation and thus, there is no contraindication to taking a relatively large island as shown in our photograph and transferring it, since the entire donor site for the neurovascular island pedicle will be relatively asensory.

Conclusions

This case is presented to demonstrate the reconstruction of an essentially functionless hand into a functioning hand. It clearly shows that the reconstruction of the hand following injury should start at the time of the injury. All viable components of the hand must be preserved. The general requirements for the reconstruction must be thought of at the time of the injury so that each step will add a functional component to the reconstruction of the hand. Comesis is completely secondary to function in hand reconstruction.

Dr. Allen, 95 West Street, Portland, Maine 04102
Dr. Labelle, 95 West Street, Portland, Maine 04102
Dr. Crane, 157 Pine Street, Portland, Maine 04102

Reflections on the Life of Niles Lee Perkins, Jr., M.D. (1919-1971)

Dr. Niles L. Perkins, Jr. was a native son whose personal life and professional career were inextricably bound up with the State he loved and with its people. So it was that the entire State of Maine was profoundly saddened by the sudden accidental death of Dr. Perkins on April 24, 1971; his loss was keenly felt not only by his many professional colleagues and friends, but also by the numerous citizens of diverse social, economic and geographic background whose lives were favorably influenced by his efforts.

Dr. Perkins was born in Augusta, Maine, on July 1, 1919, the son of Niles and Marion Sterling Perkins. Following graduation from Cony High School and Governor Dummer Academy, he entered Bowdoin College in the Class of 1942. After two years, he transferred to the University of Maine to study mechanical engineering. His education was interrupted by World War II, during which he served in the United States Navy as a radar technician. Returning to Bowdoin after completion of his military service, he undertook premedical studies and matriculated at Tufts Medical School in the fall of 1946. He graduated in 1950 with the degree of Doctor of Medicine, *cum laude,* having been elected to Alpha Omega Alpha Medical Honor Society.

Following a two year internship at the Maine General Hospital, he entered general practice in Bingham, Maine, leaving in 1953 to enter the field of Industrial Medicine, first as Medical Director at the Bath Iron Works, and subsequently at the Oxford Paper Company in Rumford. In 1960, he returned to the Maine Medical Center to complete residency training in Internal Medicine and Cardiology, following which he entered private practice in Portland, serving simultaneously as Research Associate in the Cardiovascular Laboratory of the Maine Medical Center under a National Heart Institute Grant. During this same period, he was elected to the Portland City Council, and served as a consultant to the Maine Department of Health and Welfare. His longstanding concern for improving health care in Maine led him in 1965 to enter the Harvard School of Public Health, from which he received the degree of Master of Public Health in 1966. He then assumed the post of Director of the Bureau of Medical Care of the Maine Department of Health and Welfare, and played a key role in organizing the Division of Emergency Medical Services, and in developing Maine's Title XIX (Medicaid) Program, Maine's Comprehensive Health Plan and the Upper Kennebec Valley Regional Health Agency. During the same period, he served as a corporator and director of Medical Care Development, Inc., consultant to Maine's Regional Medical Program and Chairman of its Regional Advisory Group, and member of the Governor's Task Force on Rehabilitation Reorganization. In 1969, he was appointed Executive Director of the Penobscot Bay Medical Center, a position he held at the time of his death. In recognition of his outstanding contribution as architect of a pioneering comprehensive health care plan for the region, the trustees of the Penobscot Bay Medical Center unanimously voted to establish the Dr. Niles L. Perkins Memorial Trust Fund for a medical library and continuing education programs at the Center.

A complete picture of Niles Perkins requires that we look beyond his public record of accomplishments and examine some of the personal circumstances which affected his career. As a boy he was afflicted with osteomyelitis, which left a permanent impairment of the right forearm. He convalesced at his uncle's farm in Caratunk, and regained his strength by repeatedly and single-handedly pulling a heavily loaded wagon up a steep hillside. This handicapped boy went on to become a star in football and track; as a college sophomore he kicked the longest field goal in the country and established a national record in the 35 pound weight event! It is revealing to note that later, while in medical school, he gave of his time to coach the athlete who subsequently broke his weight record. While serving in the Navy, he contracted poliomyelitis with paralysis of the arms and shoulders. In describing this illness, he once remarked that he was unable even to help his wife wash the dishes, for fear of dropping and breaking them; with characteristic determination, he regained the use of his arms after prolonged physical therapy. He overcame yet another potentially disabling illness in the form of a herniated intervertebral disk. It seems likely that his concern and compassion for the sick and disabled may have been conditioned by his own personal experience. That his concern extended beyond purely professional bounds is reflected by the fact that wherever he and "Pearlie" lived, their home was the gathering place for the troubled, friend and stranger alike, with counsel and material assistance freely given even at times when his own problems were greater than theirs.

In his curriculum vitae, under the category of hobbies, Niles listed only one item: The State of Maine. He was never happier or more at peace than when hunting in her fields, forests and marshes, fishing in her lakes and streams, or flying over her terrain. It was Maine's good fortune that his love for her would not permit him to accept the many professionally attractive and lucrative offers he received from other areas.

Dr. Perkins was a member of the Cumberland County Medical Society, the Maine Medical Association, the American Medical Association, the American Public Health Association, the American Public Welfare Association, and the consulting staffs of the Maine Medical Center and several other Maine hospitals.

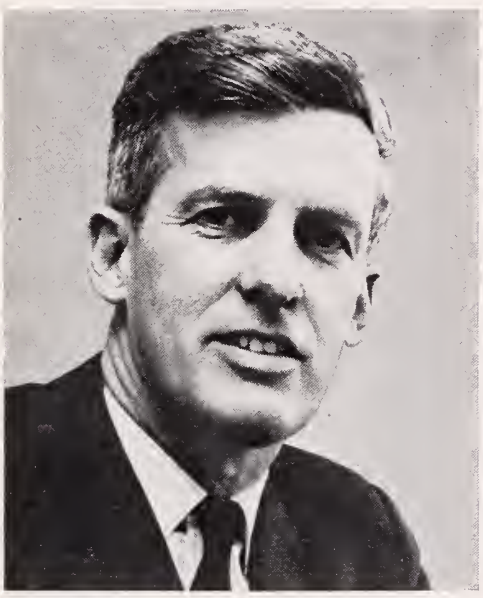
He is survived by his wife, Pearl, of Bowdoinham, a

Continued on Page 187

President

Maine Medical Association

1972-1973



GEORGE W. WOOD, III, M.D.

George W. Wood, III, M.D. of Brewer, Maine became the 123rd President of the Maine Medical Association at the 119th Annual Session banquet on June 12, 1972. Dr. Wood served as Alternate Delegate to the AMA from 1965 to 1969, and has been Delegate since 1969. At last June's meeting, he was reelected, by acclamation, to serve as our Delegate until January 1, 1974. Dr. Wood was M.M.A. Council Chairman from 1970 to 1971 and was elected President-elect for 1971 to 1972.

Dr. Wood was born in Macon, Georgia on December 5, 1921, son of George W. and Daisy H. Wood. He was graduated from the University of Florida in 1943 and received his medical degree from Cornell University Medical College in 1946. His postgraduate courses and hospital services include a rotating internship from 1946 to 1947, assistant resident in Medicine from 1949 to 1950 and senior resident from 1950 to 1951 at the Hartford Hospital in Connecticut. From 1947 to 1949, he served as a Medical Officer in the U. S. Army. He was senior physician at the Connecticut State Tuberculosis Sanatorium, and Clinical Instructor in Medicine at Yale University School of Medicine from 1951 to 1952. Dr. Wood has been practicing Internal Medicine in the Brewer area since 1952.

He is a member of the Penobscot County Medical Association, the Maine Medical Association, the American Medical Association, the American Board of Internal Medicine, and is a Past President of the Maine Tuberculosis and Health Association and the Maine Thoracic Society. Dr. Wood has also served as the volunteer Medical Director of the Bangor-Brewer Tuberculosis and Health Association, served for many years on the Hospital and Advisory Committee of the City of Bangor, was President of the Eastern Maine General Hospital medical staff, and is a member of the Board of Directors of both the Maine Heart Association and the Maine Tuberculosis and Health Association. In May, the National Tuberculosis and Respiratory Association elected Dr. Wood to the Board of Directors as representative director for Maine and the Maine Tuberculosis and Health Association. In 1969, he was awarded the Roselle W. Huddilston Medal for his "distinguished service and outstanding contributions in the field of health to the people of the State of Maine."

Executive Committee Members Elected at the 119th Annual Session of the Maine Medical Association

Kennebunkport, Maine — June 11, 12, 13, 1972

President
GEORGE W. WOOD, III, M.D.
Brewer

President-elect
PAUL A. FICHTNER, M.D.
Bath

Alternate Delegate to the AMA
ROBERT E. MCAFEE, M.D.
Portland

Speaker of the House
GEORGE W. BOSTWICK, M.D.
Newcastle

Second District
HOWARD P. SAWYER, JR., M.D.
Portland

Third District
RICHARD C. LECK, M.D.
Bath

Fourth District
RICHARD T. CHAMBERLIN, M.D.
Waterville

Sixth District
EUCLID M. HANBURY, JR., M.D.
Executive Committee Chairman
Belfast

Ninth District
JOHN B. MADIGAN, M.D.
Houlton



DR. FICHTNER



DR. HANBURY



DR. MCAFEE



DR. SAWYER



DR. CHAMBERLIN



DR. BOSTWICK

Drs. Howard P. Sawyer, Jr., Richard T. Chamberlin and John B. Madigan were each reelected to the Executive Committee for three-year terms. Dr. Richard C. Leck was elected to complete Dr. Paul A. Fichtner's unexpired term (1972-1974).

DR. LECK of Bath, Maine was born in Newark, New Jersey on February 12, 1931, son of Walter C. and Katharine T. E. Leck. He was graduated from the University of Chicago in 1955 and received his medical degree from the University of Chicago School of Medicine in 1959. Dr. Leck interned at the University of Chicago Clinics from 1959 to 1960 and served a residency in Paediatrics for two years. From 1962 to 1964, he served in the USAF as a Captain and then served a residency in Pathology at the University of Colorado Medical Center from 1964 to 1968. Dr. Leck practiced at the St. Anthony's Hospital in Rock Island, Illinois and the Moline Public Hospital in Moline, Illinois from 1968 to 1970 when he located in Bath.

He is a member of the Lincoln-Sagadahoc County Medical Society, the Maine Medical Association, and is certified by the American Board of Pathology.

Elected to complete Dr. Richard P. Laney's term (until 1/1/74) as Alternate Delegate to the American Medical Association was Dr. Robert E. McAfee.

DR. McAFEE of Portland, Maine was born in Portland on August 25, 1935, son of Harold G. and Elizabeth H. McAfee. Dr. McAfee was graduated from Deering High School in 1952, Bates College in 1956 and received his medical degree from Tufts University School of Medicine in 1960. He interned at the Maine Medical Center and served a residency in General Surgery from 1961 to 1965. Since 1965, Dr. McAfee has been attending surgeon at the Maine Medical Center and the Mercy Hospital, and consultant in surgery at the Pineland Hospital and Training Center since 1971.

He is a member of the Cumberland County Medical Society, the Maine Medical Association, the American Medical Association, and is certified by the American Board of General Surgery.

Dr. McAfee is currently President-elect of the American Cancer Society, Maine Division, Inc. and is also serving as chairman of its Medical Affairs Committee; chairman of the State Advisory Committee and State Ambulance Licensure Board of the Emergency Medical Services Division, Department of Health and Welfare; chairman of the Committee on Recruitment, Aid and Placement of the Maine Medical Association (1971-1972); and is clinical instructor in surgery at Tufts University School of Medicine.

Active in community affairs, he is chairman of the Sex Education Advisory Committee, City of Portland School Committee, and President of the Forest Lake Improvement Association.

From the Secretary's Notebook

119th Annual Session of the M.M.A. House of Delegates

The 119th annual session of the M.M.A. House of Delegates was held at The Colony, Kennebunkport, Maine on Sunday, June 11, 1972 with an attendance of seventy delegates and alternates, and thirty-two guests. Linus J. Stitham, M.D., President of the M.M.A., called to order the meetings of the House which were presided over by George W. Bostwick, M.D., Speaker of the House.

Reference Committees – Dr. Bostwick announced that the procedure for the conducting of business this year has been changed somewhat, in that during the morning session of the House, business will be introduced without debate and referred immediately to a Reference Committee. The Reference Committees will then meet directly after the morning session, where debate will take place. The Reference Committees will report back to the afternoon session of the House and will make their recommendations. There will be open debate on any of these recommendations.

Election of Speaker and Vice Speaker of the House of Delegates for 1972-1973 – George W. Bostwick, M.D. was reelected Speaker of the House of Delegates and Richard M. Swengel, M.D., Vice Speaker of the House.

Budget for 1973 – The proposed budget for fiscal year 1973 was approved.

Reports (not included in House of Delegates folder) –

Executive Director – Daniel F. Hanley, M.D.

Oral reports were also presented by the following committees:

Recruitment, Aid and Placement – Robert E. McAfee, M.D., Chairman, emphasized the need for additional monies for the Maine Medical Education Foundation and called attention to the proposed resolution, asking for a $25.00 increase in the M.M.A. dues – this additional amount to be earmarked for the Maine Medical Education Foundation.

Care of the Disadvantaged – David C. Dixon, M.D., Chairman, in addition to his written report, brought attention to the Salvation Army Camps being held at Lake Sebago this summer for underprivileged children, stating that letters re this matter will be sent to all county medical societies. He added that Dr. Bacon should be soundly praised for his work in this area.

Peer Review – Euclid M. Hanbury, Jr., M.D., a member of this committee, reported that all county peer review committees have met and are handling cases. He informed the House that the State committee had applied for an EMCRO grant and have tentatively been awarded $50,000. Some interesting data has been discovered by the committee which will be presented at the fall meeting of the House of Delegates. Before that time, data will be sent to the county peer review committees, so some of the differences can be resolved. Cooperation from the county societies within 30 to 60 days was most urgently requested by Dr. Hanbury.

Diabetes – Melvin Bacon, M.D., Chairman, read his annual report.

Woman's Auxiliary to the M.M.A. – Mrs. Albert C. Johnson, President of the Auxiliary for 1971-1972, presented an excellent report, defining what the Auxiliary is and what it does. She explained that health careers is a special item for the Auxiliary this year and they are willing to work anywhere they are needed. Mrs. Johnson's report was referred to the Executive Committee for implementation of the suggestions at the instruction of the House of Delegates.

A. H. Robins Company Community Service Award – The Community Service Award for 1972 was presented to Richard P. Laney, M.D. of Skowhegan by Linus J. Stitham, M.D.

Associated Hospital Service of Maine Award of Appreciation – This award, initiated last year, was given to Richard T. Chamberlin, M.D. of Waterville by Mr. Richard F. Nellson, President of A.H.S.

Medical Examiner Awards – Dr. Charles F. Branch, Chief Medical Examiner for the State of Maine, presented ten Maine physicians with Medical Examiner Awards for outstanding and long service to the State.

MEMPAC — Dr. John H. Steeves, Chairman of MEMPAC, reported that they hope to deliver a better understanding of the political workings in medicine. He urged that all members join MEMPAC and become politically active.

Committee on Nominations – The following slate was presented by this committee (Alfred E. Swett, M.D., Chairman):

President-elect

George W. Bostwick, M.D. and James C. Bates, M.D.

Executive Committee

2nd District – Howard P. Sawyer, Jr., M.D. and Stanley B. Sylvester, M.D.

4th District – Richard T. Chamberlin, M.D. and Jose M. Rodriguez, M.D.

9th District — John B. Madigan, M.D. and Gerald H. Donahue, M.D.

With the vice-speaker of the House, Leonard G. Miragliuolo, M.D., presiding, Dr. Bostwick proposed the name of Paul A. Fichtner, M.D. (current Chairman of the Executive Committee) for President-elect. This was seconded and approved. There were no further nominations from the floor for the Executive Committee positions.

Following a vote by written ballot – there was a tie for President-elect between Drs. Bostwick and Fichtner, and another vote took place – the following physicians were elected:

President-elect
Paul A. Fichtner, M.D.

Executive Committee
1st District – Howard P. Sawyer, Jr., M.D. (3 years)
4th District – Richard T. Chamberlin, M.D. (3 years)
9th District – John B. Madigan, M.D. (3 years)

Dr. Glassmire pointed out that with the election of Dr. Fichtner as President-elect, a vacancy in the Third District occurs on the Executive Committee. Speaker Bostwick instructed the Committee on Nominations to retire and bring in two nominations – they were Drs. Richard C. Leck and Elihu York. Following a written ballot vote, Dr. Leck was elected to complete Dr. Fichtner's term (until June of 1974).

Report of Reference Committees – All printed and oral reports referred to these three committees were approved. The legislative committee report, which was discussed at some length, dealt mainly with chiropractic. The Reference Committee felt that one meeting a year is not enough and they recommended to the House of Delegates and to the Executive Committee that it would seem prudent to develop a broad-based health education and information program with the specific goal of providing legislators and/or legal counsel with factual information which they may need, desire, or perhaps not want, so that the wishes and the will of the practitioners of medicine in Maine can and should be heard at the State House in Augusta. No action was taken.

Action on resolutions and other items referred to the reference committees appear elsewhere in this summary.

RESOLUTIONS

Dues Increase – The following resolution, which was presented by Linus J. Stitham, M.D., was unanimously *approved* and will be in effect in 1973:

RESOLVED, that the Maine Medical Association dues be increased from $100 to $125 a year; this additional $25 to be earmarked for the Maine Medical Education Foundation. In the event this is approved, the present voluntary assessment will be abolished.

Physicians' Fees – The following resolution,



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which was presented by Paul A. Fichtner, M.D., was unanimously *approved:*

WHEREAS, all individuals insured under Federal and State medical insurance programs pay identical premiums, and

WHEREAS, all physicians in the State of Maine are subject to identical Federal and State taxes and are licensed under the same statutes, and

WHEREAS, discrimination and differentiation in physicians' fees according to geographic location mitigates against adequate delivery of medical care to inhabitants of rural and depressed areas by virtue of making such areas unattractive to physicians, and

WHEREAS, there now exists in this State discrimination and differentiation of fees allowed under Federal and State medical insurance programs,

THEREFORE, BE IT RESOLVED that the Maine Medical Association proposes that all fees paid to physicians in the State of Maine by any Federal or State medical insurance program be based on a single relative value scale according to service rendered, regardless of the geographic area in which service is rendered.

Medical School for Maine – This resolution, which was presented by Drs. Bove, Chamberlin, Fichtner, Hanbury, Lape, Madigan and Stitham, was discussed at length. Dr. Stitham spoke in favor of the medical school, but said it is time to work – not explore. This has been studied to death. We must have a solid commitment from the medical association — now is the time of decision. Dr. Stitham further stated that he feels this is the most important item to come before the M.M.A. House of Delegates in some time. Hopefully, he added, the medical school will provide more primary physicians. He suggested one other benefit – all communities will have the opportunity to teach a student. He pleaded with the members not to let it die. Other physicians questioned whether this was the right way to increase our number of physicians and what other ways the money could be spent toward this end. Some physicians feel that developing a family practice residency program in Maine will accomplish the same results as statistics show that physicians go where they receive their final training.

The resolution, as follows, was *approved* with one "no" vote:

WHEREAS, Medical Care Development, Incorporated with its Advisory Committee of nineteen physicians has developed and released a report entitled "A Rationale And Program For A College Of Physicians In The State Of Maine," which recommends the establishment of an innovative medical school without new walls in the State, and

WHEREAS, the University of Maine has placed a high priority on the study of the report and its recommendations including the obtaining of consultant services from Dr. Oliver Cope, and

WHEREAS, the Executive Committee of the Maine Medical Association has studied some of the aspects of the proposal in depth using the method of a special physician group consultation team which visited and observed similar innovative medical schools, and

WHEREAS, the report of this consultative group was favorable to the project and recommended that positive action be taken by the Maine Medical Association,

NOW THEREFORE BE IT RESOLVED, that the House of Delegates of the Maine Medical Association recommend that the University of Maine should continue to develop the concept of a medical school for Maine with all deliberate speed, and further

BE IT RESOLVED, that the Maine Medical Association pledges its active support to the University of Maine in this endeavor.

Committee on Maternal and Child Welfare – #1 – This resolution, as amended, was approved:

WHEREAS, the population of the State of Maine is distributed over such a large geographic area, and

WHEREAS, good scientific evidence has indicated that premature and high risk newborn infants can be best treated in special intensive care centers,

THEREFORE, be it resolved that the Maine Medical Association through its special Committee on Maternal and Child Welfare, conduct a survey of existing facilities including both personnel and equipment for the intensive care of high risk newborns in this State. Furthermore, that the report shall be presented to the House of Delegates for consideration.

Committee on Maternal and Child Welfare – #2 – The reference committee recommended passage and suggested that this resolution be referred to the Executive Committee and this was unanimously *approved:*

WHEREAS, most health insurance contracts exclude the care of newborns for the first 14 days of life, and

WHEREAS, one of the most expensive and greatest needs for health care occur in premature and high risk newborn infants during this first two weeks of life,

THEREFORE, be it resolved that the Maine Medical Association notify all health insurance carriers in this area that the Maine Medical Association favors hospital medical and surgical insurance coverage for newborn infants during this critical period.

Committee on Maternal and Child Welfare – #3 – This resolution, as amended, was *approved:*

WHEREAS, the Legislature of the State of Maine has already passed the Legislation permitting physicians to treat minors for venereal disease without notifying the parents in order to encourage minors to seek treatment, and

WHEREAS, it is important for the health of mothers and their unborn children to receive prenatal care,

THEREFORE, be it resolved that the Maine Medical Association recommend to the legislature

of the State of Maine to include pregnancies and family planning by passing a law similar to House Resolution #73 of the 76th General Assembly of the State of Missouri. (This law also provides for the treatment of drug abuse.)

Committee on Maternal and Child Welfare – #4 – This resolution was amended and *approved* as follows:

WHEREAS, it has been reported that the roster of children receiving care under the Crippled Childrens Services Program of the State of Maine has fallen from about 5,000 to less than 500 in the past few years, and

WHEREAS, it was further reported that certain chronic disabling diseases are not eligible for care under the crippled Childrens Services,

THEREFORE, be it resolved that the Maine Medical Association notify the Commissioner of Health and Welfare of the State of Maine that it strongly recommends that the state government provide medical care for children with any chronic disabling disease when the parents cannot afford to provide this care.

Committee on Continuing Education – Concern was shown for what provisions will be made for physicians in rural areas to receive the continuing education and it was pointed out that this might perhaps be by written exam, rather than actual attendance at meetings. Dr. Monaghan said that this resolution would require a lot of work to be done by 1973. Dr. Glassmire suggested deleting the paragraph requiring members to show evidence of participation in continuing education programs as a condition for continued membership, and this was approved with one "no" vote. The resolution, as amended, was *approved:*

WHEREAS, the purposes of the Maine Medical Association as stated in its constitution include the promotion of the science and art of medicine, the protection of the public health, and the betterment of the medical profession, and

WHEREAS, the rapid increase in the amount and complexity of new medical knowledge in recent years has made it increasingly difficult for the physician in a busy practice to keep up to date so as to insure accomplishment of these purposes, and

WHEREAS, the present position of total permissiveness existing in the medical profession does not insure adequate motivation for all physicians to participate in the many opportunities for continuing medical education which are available, and

WHEREAS, experience at the national level with the American Medical Association's Physician Recognition Award (1968) and at the state level such as in Oregon and others (1970) suggests that an educational requirement for membership is an effective force motivating the physician to participate in continuing medical education, and similarly

WHEREAS, the medical profession has been



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under increasing surveillance by all levels of our society with the result that adequate documentation of activities and decisions of its members become important,

BE IT RESOLVED, the Committee on Continuing Medical Education and the Executive Committee of the Maine Medical Association be charged with defining the exact educational requirements which shall be necessary for continued membership in this society in the future, so that appropriate bylaw changes may be properly developed and circulated to allow presentation of them to the House of Delegates no later than June of 1973, and further

BE IT RESOLVED, that the Committee on Continuing Medical Education and the Executive Committee of the Maine Medical Association take immediate steps to investigate methods which will lead to accreditation of the various programs for continuing medical education existing in the State in order to provide the membership with easy access to accredited programs.

Androscoggin County #1 – This resolution, resolving "that the Maine Medical Association opposes the provision of special utilization review services by private practitioners of Medicine (hospital-based Utilization Review Committees) to the private insurance industry" was *defeated.*

Androscoggin County #2 – The reference committee had an enlightened talk with Dr. Robert Ohler of the VA Center. It was suggested that perhaps this should be referred to the AMA in Washington. Dr. Hanley reminded the delegates that it takes money for trips to Washington and that the AMA had a similar resolution and they didn't have the personnel nor the funds for it. Dr. Glassmire suggested that the resolution be amended, and the amended resolution was *approved* with three "no" votes:

WHEREAS, more and more requirements regarding utilization of medical facilities and medical care have become necessary since the advent of Medicare, and

WHEREAS, most recently the concept of peer review has become a reality, and

WHEREAS, the Federal Government feels that this is a necessary requirement to deliver good medical care, and

WHEREAS, at the present time the question of utilization review at government facilities such as V.A. Hospitals (in particular Togus) are not subject to the same rigid requirements as private medical facilities,

THEREFORE, be it resolved that the Maine Medical Association go on record as favoring the principle of equal utilization review in V.A. hospitals as well as in non-governmental hospitals and that efforts be made as a body to enforce one system rather than a double standard.

Androscoggin County #3 – This "communication" re the Proposed Medical School for Maine was read, but *no action* was taken as it was not in resolution form. One statement in it, "the chief argument against such a conventional medical school in Maine is the supposedly excessive cost, yet no such cost survey has ever been made . . ." was argued since such a cost survey was done and results given in the Truslow report a few years ago.

Hancock County – Originally submitted by the Hancock County Medical Society, this resolution was re-written and substituted by the Reference Committee and it was *defeated.* The resolution stated "that the role of the physician should be that of aiding each patient to obtain information and medical assistance to choose when to conceive or complete a pregnancy; and that this information and assistance should not be withheld from a patient because he or she is a minor or on the basis of numbers of offspring."

Knox County – This "communication" resolved that the Knox County Medical Society wished to "inform the House of Delegates that with the information we have gained from the last meeting of the House of Delegates in Bangor and from a special session of the Society with Dr. Philip Lape, the organizational structure of the proposed medical school is, at present, unacceptable to us." This was discussed, but *no action* was taken as it was not in correct resolution form.

Cumberland County – Submitted by the CCMS, this resolution, which said "the Maine Medical Association is in agreement with the Maine Hospital Association in its stand that proposed changes by Blue Cross relating to utilization controls as set forth in Subscriber Certificate "F" require clarification and redrafting of several sections in order to be acceptable" was *defeated.* The delegates were advised that Subscriber Certificate "F" is not completed as yet and the resolution was premature. Mr. Nellson, President of Blue Cross and Blue Shield, remarked that all the points questioned have either been resolved, eliminated or revised in some manner.

Somerset County – This resolution, asking that "the Maine Medical Association by its Executive Committee, seek out and advise any group, individual or institution as to the direction to be taken with and the use to be made of any moneys received, or to be received, from any source, public or private, for the purpose of establishing or advancing any medical program in the State of Maine" was *defeated.* The Reference Committee felt that this was not in the province of the Executive Committee, and Dr. Davy added that it would be an impossible task, even for a government agency.

Miscellaneous –

a) Dr. Stitham reported on an Executive Committee meeting held June 10th at The Colony with representatives from the 10th Special Forces at Fort Devens in Massachusetts re going to Indian reservations with a group of Army doctors, with corpsmen, and staying there for a week or two conducting a screening survey of the Indians. In the near future,

they will be contacting the physicians in the areas around the reservations about this program.

b) Dr. Wood thanked the delegates for the opportunity to serve as their President and addressed himself to three subjects. First, the role of the President of the Association – he is a member of the Executive Committee, spokesman for the Association, visits county medical societies – somewhat ceremonial in nature. He would like to change this function. When he visits the county societies, he wishes to do so informally – to listen, respond as to State and national level action, etc. The second item was priorities. Shortly, many physicians will receive a letter asking them to list what they feel are the most important, short-term goals. He would appreciate an early reply so that by summer's end, we will be able to go to work. He would like to involve the President of the hospital staffs and have them more involved in the medical association. Finally, what is the role of the medical association in the total health and medical care of our State? Should the medical association be the dominant force as to where the medical services are going to be dispensed over the next 25 years? Should the President visit each hospital in the State and talk with the administrator and trustees? Should he also talk to insurance carriers and those intimately concerned with medical services? Dr. Wood added that if we can demonstrate effectiveness, we will be looked to as the voice of medicine in the State. Should we sit down with leaders of all concerned with medicine? He emphasized that we have to be well organized – have a series of discussions – we have a chance to demonstrate increasing leadership in all medical areas, and he would earnestly seek support in trying to exercise this leadership.

c) The Speaker of the House, Dr. Bostwick, suggested that the annual meeting of the House of Delegates have its first session on Saturday afternoon and the second session on Sunday, instead of all in one day. Dr. Charles Steele made a motion to this effect and it was *carried*, with four "no" votes.

d) Speaker Bostwick questioned whether we ought to have a Rules Committee to determine limiting debate, arranging the shape of the meeting, etc., or should we continue to leave it to the discretion of the Speaker? It was agreed to continue as is.

e) Dr. William Schumacher reported that he hoped the State Hospital "admissions problems" are now resolved. No patient will be declined without first being seen by an M.D., and no patient will be declined until the referring doctor is notified.

f) For thought and consideration, Dr. Wood suggested that the M.M.A. House of Delegates have its business meetings in Maine and then fly elsewhere for the scientific sessions.

Special Memberships – The recommendations for special memberships were approved. (The list of members recommended for Special Membership was included in the Delegate's folder.)

Continued on Page 187



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Maine Heart Association Notes
20 Winter Street, Augusta, Maine

The Syndrome of Midsystolic Extra Sound and Late Systolic Murmur

William E. Shell, M.D.*

Mid-late systolic clicks and the associated late systolic murmurs are frequently encountered in clinical practice. Concepts concerning the generation of these auscultatory phenomena have undergone rapid evolution in the last ten years. Traditionally, these sounds were considered to be benign extracardiac events generated by the motion of pleural-pericardial adhesions. However, it is now established that they are related to mild mitral regurgitation and emanate from tension on a large ballooning, redundant posterior mitral valve leaflet. Moreover, in a substantial proportion of cases, there is a strong familial association of mid-late systolic extrasounds and late systolic murmurs indicating a congenital etiology for the valvular abnormality.

Auscultation

The mid-late systolic extrasound or click is a high pitched transient, usually best heard at the apex but often radiating widely. The most salient feature is its extreme variability. The sound may vary with position and/or respiration in an unpredictable fashion. Its quality, intensity, and position in the cardiac cycle can vary from moment to moment without provocation. In certain patients, the sound is appreciated only in the standing positions, while in others, only in the left lateral or the supine position. Thus, careful auscultation will be necessary to detect its presence. Frequently, there is an associated systolic murmur of mitral regurgitation. In most instances, the murmur will be confined to late systole and follow the systolic click. However, pansystolic and midsystolic murmurs also occur with the systolic extrasound and also indicate mitral regurgitation. The murmur also displays some variability, but to a lesser degree than the sound. It may be high pitched and is frequently located at the apex with poor radiation. The murmur, as well as the sound, may be difficult to hear and again careful auscultation is necessary.

Cineangiocardiography

The cineangiocardiograms in the majority of patients with either systolic extrasounds or late systolic murmurs show a peculiar retroversion of the posterior mitral leaflet during mid to late systole. The valve leaflet balloons backward like a sail caught in a strong wind and fills with contrast medium. The systolic extrasound occurs at the height of the excursion of this redundant leaflet. The floppy valve can be easily seen in either oblique position. Frequently, there is a mild degree of mitral regurgitation usually confined to late systole.

Pathologic Studies

There have been few postmortem examinations reported in patients with these auscultatory phenomena. Barlow reported a man who died suddenly and who had enlarged redundant posterior leaflet with normal chordae tendineae. We have examined the valves of two patients with midsystolic extrasounds, late systolic murmurs, and abnormal cineangiocardiograms. The findings were similar in both patients. The anterior leaflet area was 2-4 times larger than normal, while that of the posterior leaflet was 4-6 times greater than expected. Both patients had extensive deposition of a sulfated mucopolysaccharide in the media of the valve leaflets while the chordae tendineae, as well as the coronary arteries, were normal.

Clinical Syndrome

The majority of patients with either midsystolic extrasounds or late systolic murmurs are asymptomatic and the auscultatory phenomena are found incidentally. Two major symptom complexes merit discussion. Many of the patients complain of chest pain. The pain is substernal and crushing in quality. It is brought on by exercise but may occur at rest. It lasts minutes to hours and is poorly responsive to nitroglycerin. The pain has been attributed to angina pectoris, coronary insufficiency, myocardial infarction, and noncoronary chest pain depending on which components are most prominent in a particular patient. Coronary anteriograms have been normal in patients studied. The bouts of prolonged chest pain rarely are accompanied by enzyme rises. In a recent study of young females with chest pain, positive exercise tests and normal coronary arteries, 4% had the midsystolic click-late systolic murmur syndrome. The exact etiology of the chest pain is currently obscure.

These patients frequently complain of palpitations. Several types of arrhythmia have been docu-

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Prepared by the Maine Heart Association for this Journal.

mented including premature ventricular contractions, exercise induced ventricular tachycardia, paroxysmal atrial fibrillation, and paroxysmal atrial tachycardia. Etiology is not entirely clear. Sudden death may occur in patients with the syndrome and among their first degree relatives.

Electocardiograms

Electrocardiograms are frequently abnormal in patients with late systolic murmurs and/or mid-late systolic extrasounds. The abnormalities consist of T-wave flattening and inversion in leads II, III, avf, V_{4-6}. Evidence of transmural myocardial infarction is seen rarely. Exercise electrocardiograms in patients with chest pain and auscultatory evidence of floppy valves are frequently positive exhibiting ST segment depression despite normal coronary arteriograms. Exercise testing may precipitate arrhythmias, including multiple premature ventricular contractions and ventricular tachycardia. Thus, such tests in patients with the ballooning mitral valve syndrome should be performed with caution and careful monitoring.

Diagnostic Studies

A number of noninvasive tests may be used to establish the origin of the late systolic murmur as mitral regurgitation. Amyl nitrite administration causes the mid-late systolic extrasound to move earlier in systole frequently merging with the first heart sound. The late systolic murmur also moves earlier in systole and may become pansystolic; its intensity does not change.

Handgrip may be very effective in evaluating these auscultatory phenomena. Handgrip may bring out a systolic extrasound which is evanescent and difficult to document.

Ultrasound examination of the mitral valve often is characteristic in the syndrome. Abnormal motion of the anterior leaflet as well as clear separation of the leaflets on the echogram are common. When present, these signs are nearly pathognomic of the ballooning posterior leaflet syndrome.

A majority of patients with either midsystolic extrasounds or late systolic murmurs are asymptomatic. Their prognosis for longevity appears independent of the extent of abnormality in the mitral leaflets. However, the occurrence of chest pain and arrhythmias is associated with considerable prognostic uncertainty. The rate of progression of the mitral regurgitation is unknown. Thus, asymptomatic patients with the auscultatory phenomena of the syndrome must be followed periodically.

When chest pain is prominent, treatment with propranolol and long acting nitrates may be initiated. This mode of therapy has afforded significant relief in some patients. Control of arrhythmias is indicated in light of the incidence of sudden death. Ventricular extrasystoles should be treated with propranolol and digitalis, while atrial arrhythmias can often be managed effectively with digitalis alone.

REFLECTIONS ON THE LIFE OF NILES LEE PERKINS, JR., M.D. (1919-1971)

Continued from Page 176

son, Niles Lee Perkins III of Waldoboro, and a daughter, Mrs. Thomas Ward of Yarmouth.

WHEREAS our society is deeply grieved at his passing,

BE IT RESOLVED that this account be incorporated into our records, and a copy sent to his family with our profound sympathy.

Harold L. Osher, M.D.
James H. Bonney, M.D.
Winton Briggs, M.D.

FROM THE SECRETARY'S NOTEBOOK – *Continued from Page* 185

Stenographic Record – A summary of the proceedings of the House of Delegates is being sent to the county presidents and secretaries and to the delegates and alternates of each county society. (The complete report is on file in the Association's office in Brunswick; where it is available to any member of the Association.)

The meeting was adjourned at 6:10 P.M.

Patricia A. Bergeron
Secretary-Treasurer, M.M.A.

Professional Relations

The following is part of the report given by Ned F. Parish, President of the National Association of Blue Shield Plans, at the organization's 1972 Annual Business Meeting.

Certainly one of the key problems facing Blue Shield today centers around professional relations.

It's been said that success comes only after you do what you have to do — at the time you hate to do it the most. In this — my first address to this body as NABSP President — I hate to tackle this critical and often emotional issue.

But the success of Blue Shield will rest to a great extent on professional relations and I feel compelled to share these thoughts with you.

Blue Shield was organized by physicians in the beginning, but it is clear in every document and from the memories of those who were around at the time, that these physicians helped establish Blue Shield to serve the public.

Early support for Blue Shield in the medical community was intense, but not very widespread. And, if it had not been for some extraordinarily dedicated doctors, the movement would not exist today. So, when I run across a physician who feels we exist solely for his benefit, my first reaction is one of dismay, because such an attitude is a grave injustice to the image of those other physicians who made many personal and professional sacrifices so that the public could have better access to medical care.

I think there is no greater monument to the spirit and dedication of doctors than Blue Shield. Every physician can be proud that he is a member of a profession that shares a major responsibility for helping to build a strong system that provides the public with relatively easy access to medical care.

But, he must also know that it does not belong to him; nor to me; nor to you. It belongs, instead, to those 66 million Americans who have joined together to form a health protection phenomenon known as Blue Shield.

I believe a large part of Blue Shield's professional relations problems have resulted from the impact of Medicare and Medicaid — and to a greater extent — the uncertainty of new Federal legislation.

Medicine feels — with some reason — that the public does not understand nor appreciate it. Most doctors make the decision to enter medicine at an early age. They tend to be motivated both by a desire to help people, and by a desire for the respect of the community. These motives remain strong, so that eventually they achieve their goal.

Medicine is not an easy course to pursue. Once an individual has been licensed to practice, he feels he has earned a measure of respect from society. Unfortunately, to an increasing degree, the physician begins his medical practice only to find that the public can also be highly critical, and less than sensitive to the sacrifices that have been made in order that the young doctor may now serve the public with his knowledge. The result is that the doctor may be a little disenchanted with the public at the outset.

Blue Shield, then, one of whose purposes is to function as the public's representative in the area of medical care, may have to start out in a somewhat unpopular position.

Blue Shield also has played a role in Medicare by serving as an intermediary for 60 percent of the elderly in the Part B program, and has also served as an intermediary in Medicaid programs.

Thus, we have been identified by some physicians as part of the overall system which does not accord the system its proper respect and which is trying to put the profession under more controls. This does not enhance our popularity.

It's pretty difficult for doctors to reach into the government bureaucracy and find "the man" to complain to.

But the Plan chairman, the Plan Board member, the Plan chief executive, or the professional relations man is highly visible and always there. And many an unhappy physician is using Blue Shield as an outlet for his rancor.

What I am trying to say is that to a certain extent, we are victims of circumstances that are not all of our own making. And this is one very important reason that we must have strong, creative public and professional relations efforts. It is incumbent upon us to make sure we are in control of those circumstances that may affect Blue Shield. We are in a position to help improve communications between the profession and the public by making sure that both fully understand Blue Shield's role in health care. But, in order to accomplish this, we need the cooperation of the medical profession.

So let's try to solidify our front through a little better understanding of the mutual contributions each has made.

County Society Notes

CUMBERLAND

The 369th meeting of the Cumberland County Medical Society was held at the Stagecoach Restaurant, South Portland, Maine on May 18, 1972. There were 86 members and guests present; these guests including Dr. Oliver Cope, speaker of the evening. After the usual social hour, an excellent dinner of Roast Beef served in a delightful manner was furnished by the Stagecoach Restaurant crew.

The meeting was called to order by the President, Dr. Lawrence Crane at 8:05 p.m. It was moved, seconded, and voted by the Society to dispense with the reading of the minutes of the last meeting. Applications for membership to the Cumberland County Medical Society were then read. They had been read previously at the meeting in April. These applicants' names had been checked by the Ethics Committee and were reread for the second time at this meeting. Those applying were: Drs. Richard C. Britton, Saul Niedorf, Theodore J. Hallee, Carlyle B. Voss, David Hotelling, Paulding Phelps, Sumner Berkovich, Benjamin Herrera and Georges Abourjaily. It was moved, seconded, and voted unanimously to accept these nine applications as new members to Cumberland County Medical Society into active membership.

Dr. Albert Aranson then introduced a resolution to be presented to the Maine Medical Association from Cumberland County Medical Society at the annual meeting in June. The purpose of the resolution was to state the Maine Medical Association's agreement with the Maine Hospital Association in its stand that proposed changes by Blue Cross relating to utilization controls would have to be clarified and redrafted in order to be acceptable. A copy of this resolution was mailed immediately to the Maine Medical Association.

There being no other old or new business to come before the Society, Dr. Crane introduced Dr. Oliver Cope who spoke on the prospects of the Medical School for Maine. Dr. Cope gave an interesting and excellent review of the position at present, leaving us with the feeling that it would be difficult to finance a medical school. It was his feeling that most of the Federal and private money was incentive money for a few years only, and would not be sufficient for continued support of such a school. He did state that he thought the State could offer some excellent professors of medicine to staff the medical school; but he was less certain of the undergraduate teaching, experience, and ability to support a department of physiology, bacteriology, etc. He stated that the present faculties of the University were firmly opposed to the medical school idea as they saw it as a poaching of their finances by the medical facility. He did feel that the medical school was needed as a stimulus and as a delightful experience for all physicians in the learning and medical communication field. His remarks were well received. They brought forth numerous and various questions.

Following Dr. Cope's address, the annual meeting of the Cumberland County Medical Society was called to order by Dr. Crane. The report of the Peer Review Committee was given by Dr. Harry A. Bliss. Dr. Howard P. Sawyer gave a report of the various activities of the Executive Committee of the State Association and then the report of the retiring President, Dr. Crane, was given. Dr. Crane felt that there were several ways that this Society had demonstrated its viability and pointed out that there were more ways that it could prove its worthfulness, including exploring ways to improve the hospital use and exploring ways to promote better relations between osteopaths and physicians.

The election of officers for the new year was then held. The following officers were voted into office by written, secret ballot:

President: Dr. Douglas R. Hill, South Portland
Vice President: Dr. Winton Briggs, Cape Elizabeth
Secretary-Treasurer: Dr. Alfred E. Swett, Portland
Executive Committee Member of the M.M.A. House of Delegates: Dr. Robert E. McAfee, Portland (3 yrs.)

There was a brief discussion regarding the status of the Chiropractors and what the Society could do with regard to their activities. An excellent suggestion was made by Dr. William L. MacVane, Jr. that perhaps a meeting between the Cumberland County Medical Society and its representatives in the State Legislature could be arranged. This will be closely followed up as will be the question of whether we need a lobbyist or not.

There being no further business to come before the Society, the meeting was adjourned by Dr. Crane.

DOUGLAS R. HILL, M.D., *Secretary*

YORK

The May meeting of the York County Medical Society was held on Wednesday the 10th at the Webber Hospital, Biddeford, Maine. It was an evening meeting. The program consisted of a Social Hour from 6:30 p.m. to 7:30 p.m. Dinner followed at 7:30 p.m. Dr. Ruth Endicott of Ogunquit, President of the Society presided.

The principal speaker was Bennett D. Katz of Augusta. He is a State Senator from that area, Chairman of the Committee on Education of the Maine Senate and Chairman of the New England Board of Higher Education. His subject was, "A Medical School for Maine." A very lively discussion followed. It was a very appealing and acceptable presentation with all those present in complete accord.

It was voted to dispense with the minutes of the last meeting because they were presented in the last edition of the Newsletter. There was no correspondence or committee reports.

Two applications for membership were presented. These were Drs. Richard L. Perry of Sanford and Owen O. Dow of Saco, and they were voted into membership.

A project which concerned the participation of the Extension Aides in discussing diets with Diabetic patients was voted down.

Dr. Carl Richards discussed at length various resolutions and material to be presented at the House of Delegates meeting at the annual meeting of the Maine Medical Association to be held in June at The Colony in Kennebunkport. These were subsequently voted on and prepared our delegates for the course of action to be taken by our representation at these meetings.

The next item of business on the agenda was the announcement of the October meeting to be held at the York Hospital on Wednesday the 11th. The committee in charge consists of Drs. Kenneth E. Leigh, Chairman, Lawrence Hazzard and Charles W. Kinghorn. In an attempt to augment the attendance for this meeting, a form for completion was circulated amongst the members present and they were asked to complete it. It was set up as follows:

Preference:

1. Evening meeting or afternoon meeting.
2. Type – Socio-economic or Scientific.
3. Your proposed subject.

These will subsequently be evaluated and the meeting will be arranged in accordance with your desires.

Two stipends of $40.00 each for two underprivileged children for camperships at the Salvation Army Camp at Sebago Lake were voted and accepted.

There were 27 physicians and two guests at this meeting. Your secretaries were most pleased with this turnout.

As there was no more business to conduct at this meeting, it was adjourned in complete accord at 10:30 p.m.

CHARLES W. KINGHORN, M.D., *Secretary*

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Letter to the Editor

Following news release was made public by FDA:

WASHINGTON, D.C. — The Food and Drug Administration announced seizure of two Diapulse devices. The manufacturer, Diapulse Corp. of America, has been permanently enjoined from shipping or selling its products in Interstate Commerce.

The seizure action was against Diapulse units in possession F A Norfolk, Va., hospital. It is the first of a number of seizure actions the FDA expects to take as a result of a recent court ruling.

Over 4,000 Diapulse devices have been distributed throughout the U.S. and in several foreign countries. Purchasers include hospitals, clinics, medical doctors, chiropractors and other practitioners who have paid $2,400 to $3,000 for each machine.

The Diapulse resembles a conventional diathermy machine which is used to produce deep heat treatment. FDA has concluded, however, that on the basis of laboratory and clinical tests there are no known therapeutic benefits to be derived from the use of the Diapulse. This view has now been supported by the courts. In October, 1969, the Government stopped paying claims under the Medicare program for Diapulse treatments.

NOTE: Suggest you alert members known to possess Diapulse machines. Other seize actions planned by FDA.

H. Doyl Taylor, AMA
Chicago, Illinois

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Coronary Bypass – Who is a Candidate?

Jeremy R. Morton, M.D.

During the past five years, the coronary artery bypass operation has evolved as an effective form of treatment for many patients with severe ischemic heart disease. This procedure is relatively new to Maine, the first one was performed at the Maine Medical Center in April 1972. More than five thousand such operations have been done at other major centers throughout the United States. The enthusiasm with which the operation has been accepted is shared by surgeons and cardiologists alike and has resulted in a vast amount of literature on the subject. A proportionate amount of confusion has also been generated in the minds of many regarding the currently accepted indications for coronary angiography and bypass surgery within this group of patients with coronary heart disease.

In an effort to clarify the subject and point out which patients are good candidates for surgery, a discussion follows in which the population of patients with coronary insufficiency is divided into six groups according to the primary clinical manifestation of their disease. In each group the arguments for and against surgery, based on our experience in Houston[1,2] and the experience of others elsewhere,[3,4] are presented.

Angina Pectoris: Incapacitating angina has remained the primary indication for bypass surgery. The results of surgery in this group of patients have been remarkably similar throughout the country. Operative mortality ranges from 2% to 4% and 85% to 90% of the patients are either totally relieved of their angina or markedly improved. Clinical or electrocardiographic evidence of previous myocardial infarction in the absence of significant ventricular dysfunction does not seem to materially alter either the mortality of the procedure or the results.

Congestive Heart Failure: The results of coronary artery surgery aimed primarily at improving myocardial performance and relieving congestive heart failure have been generally disappointing.[5] Only 50% of these patients appear to be objectively improved by the procedure and the operative mortality is significantly higher than in the patients with angina. The majority of patients in this group have had multiple previous infarcts and their diminished ventricular contractility is the result of fibrous replacement of myocardium. It is understandable, therefore, that revascularization in this group is of limited value. Intermittent congestive failure associated with angina on the other hand frequently reflects ischemic but viable myocardium. Here bypass surgery may produce dramatic improvement.[6]

Myocardial Infarction Without Angina: At present it is impossible to determine with any accuracy which of these patients will live indefinitely without further difficulty and which will soon have a fatal infarct. Some centers[7] are currently performing coronary arteriograms on many of these patients in an effort to determine which arteriographic lesions place the patient in the greatest jeopardy of further infarction and what is the likelihood that such an infarction will occur. Until this information is available, however, this group of patients must remain for the most part outside the realm of surgical intervention.

Angina and Recent Infarction: Bypass surgery in patients with recent infarct (less than six weeks) has been attended by a prohibitive mortality.[3] Patients, therefore, who suffer from severe angina following an infarct should be allowed to wait for six weeks, preferably three months, before angiography and surgery are performed.

Unstable Angina: Conversely, patients with unstable "crescendo" or "preinfarction" angina constitute an extremely high risk group when treated medically and do very well with surgery.[8] These patients should undergo coronary arteriography and bypass surgery on a semi-emergent basis in order to relieve the angina and possibly avert a serious infarct.

Other Intracardiac Lesions: Coronary arteriography and bypass surgery may be indicated when coronary occlusive

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Total Hip Joint Replacement at the Maine Medical Center

Lawrence Crane, M.D.*

Reconstructive surgery of the hip has taken on new proportions with the advent of total hip replacement. This consists of replacing not only the femoral head but also the acetabulum. The secret of the success of this operation is a bone cement, methyl methacrylate which firmly fixes the femoral component into the shaft of the femur and the acetabular component into the pelvis. The entire volume of "Clinical Orthopedics" in September 1970 was devoted to this subject.

Indications

The first and most important indication for this surgery is relief of pain, persistent pain. Along with this pain goes loss of function, inability to walk without canes or crutches. Thirdly, the operation is indicated to improve motion. A woman who is able to spread her legs for the first time in years after bilateral hip replacements is ever so grateful. Degenerative arthritis of the hip is the most common cause of this disability, but rheumatoid arthritis, aseptic necrosis following fractured hips, and failed reconstructive procedures are also common indications for total hip replacements.

Contraindications

Young normal individuals with a single bad hip should be excluded from this operation inasmuch as the procedure has been observed for only seven to eight years. On the other hand, people 30 to 40 years of age who are afflicted with arthritis involving many joints benefit from this surgery, because their activities are limited. The involvement of the other joints acts as a built-in restrainer.

Previous hip infections are usually contraindications because of the danger of flaring up the disease.

Results

Just over 100 total hips have been done at the Maine Medical Center. The first one was done on September 17, 1970 and the hundredth on May 8, 1972. Our complications have been few and our results have been very satisfying, like other centers in the country. The most serious complication is deep wound infection necessitating removal of the prostheses. We have encountered only one deep wound infection, our ninety-sixth patient. The organism was an *E. coli* and to date the wound has been dry for four weeks, about eight weeks after her incision and drainage. This prosthesis has not required excision. There have been no superficial infections in this series.

The most frequent complication causing death is pulmonary embolism. Without the use of prophylactic anticoagulants, reports vary from 1% to 2%. Four cases of proven pulmonary emboli were present in our series without any deaths. Twelve cases of phlebitis were encountered and this is much lower than other series. Prophylactic anticoagulants have been used in this series only in the very few patients who had a history of phlebitis.

One hip dislocated four months postoperative from hyperflexion. This was reduced by closed manipulation and is still satisfactory eight months later. Three hips have been revised; one had a femoral shaft which was felt to be too long, and was replaced with a shorter one, and two cups were altered because they were too shallow. Both of these cases had had previous complete excisions of the femoral head years before, and consequently were a very difficult problem to begin with. These three revisions are well satisfied with the results at present. Three other patients still have moderate pain in their hips, for which we can offer no explanation. These may represent late infections, but there is no evidence to substantiate this at the present time. Three other cases have been unaccounted for, leaving 94 cases with an early good to excellent result.

This series is small and the followup is very short, but to date the operation appears to be one of the important advances in orthopedics. Mr. John Charnley of Wrightington, England is responsible for most of the pioneer work in developing this new total hip surgery commencing back in 1959. He is also responsible for lowering the infection rate from around 10% down to 1% or less. This he has done primarily by the development of his so-called "greenhouse" or lamina flow room. This is a glass room within the operating room in which the circulating air is forced through filters removing particles over .3 of a micron from the air, whereas the usual operating rooms filter particles up to 8 or 9 microns. A new Coulter particle counter has been tested in our operating rooms and the average particle count of over a half micron in size is 2300 to 3900 per square foot. In our Envirco® horizontal lamina flow room this count dropped after one minute down to 183 particles, after two minutes down to 64 particles, and after three minutes no further particles could be recorded in the Coulter particle counter. These particles may not be carrying pathogens in the ordinary operating rooms, but if there are no particles over a half micron, it would seem to be improbable for bacteria to contaminate a wound during surgery.

How can such an operation on severely crippled people give 94% good to excellent results?

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*Chief of the Department of Orthopedics, Maine Medical Center, Portland, Maine 04102.

Laparotomy for Hodgkin's Disease: Surgical Technique and Findings in 15 Consecutive Cases

Robert E. McAfee, M.D.

During the past 5 years, the concept that Hodgkin's disease arises from a single focus and spreads by contiguous lymphatically connected areas has received considerable support. With modern cobalt radiation therapy techniques, the more radical treatment of early Hodgkin's disease has resulted in significantly improved survival statistics. In order to outline an optimal treatment schedule for the patient, exact knowledge of the abdominal extent of Hodgkin's disease is required.

Although lymphangiography has been useful in detecting abnormalities of the lower abdominal lymph nodes, the presence of early Hodgkin's disease of the spleen, liver and celiac lymph node group can only be detected by microscopic examination of the removed tissue. For this reason, all patients who present with primary Hodgkin's disease are carefully considered for laparotomy prior to radiation therapy. It is currently felt in most centers that the findings of extranodal involvement, particularly of liver or other abdominal organs apart from the spleen, dictates a stage IV condition that is better treated with systemic chemotherapy rather than with radiation therapy.

Operative Protocol

The exact protocol that has been followed since the initiation of this series is outlined in Table 1.

Table 1

Surgical Staging Protocol

1. General exploration – anatomic variance as well as tumor extent.
2. Liver biopsy.
3. Splenectomy – silver clips.
4. Accessory spleen removal.
5. Splenic pedicle node.
6. Paraduodenal node excision (ligament of Treitz).
7. Aortic bifurcation node.
8. Common iliac node.
9. Ovarian displacement.
10. Appendectomy (incidental).
11. Bone biopsy iliac crest.

General exploration of the abdominal cavity has resulted in findings of significant associated disease or abnormalities in one-third of the patients of this series. These include the findings of asymptomatic gallstones, a congenitally absent left kidney, ovarian cyst, leiomyoma of the small bowel and a moderate size left renal cyst. It is felt that liver biopsy should be performed early in the course of the laparotomy prior to placing retractors or sponges on the liver which in a relatively short period of time cause enough cellular infiltration to make exact histologic diagnosis difficult. Both a biopsy of the free margin of the liver as well as central core biopsy obtained with the Vim-Silverman needle are obtained. Silver clips are placed at the splenic pedicle to allow the radiotherapist to more exactly localize this area for therapy if involvement is present and to minimize the effects of radiation on the left lower lobe of the lung and left kidney. Accessory spleens have been noted along the splenic pedicle and celiac axis and in one patient these did reveal evidence of Hodgkin's involvement. Of particular interest has been the findings of involvement of paraduodenal nodes located adjacent to the ligament of Treitz to the left of the aorta, and this seems to be a significant indicator node of involvement in the upper abdomen. Particular search has been carried out to remove this node in this current series of patients. Displacement of the ovaries has been carried out in all young females in this series, placing the ovaries in a more lateral position close to the anterior iliac spine where appropriate shielding can then afford less radiation exposure. Previously described techniques of central displacement of the ovaries behind the uterus has failed to prevent sterilization by abdominal radiation despite central shielding in 50 percent of patients. It is felt that the lateral displacement of the ovaries might achieve greater preservation of ovarian function. Incidental appendectomy has not added any significant degree of infection to the operative procedure. Finally, bone biopsy of the iliac crest obtained by means of the Craig bone biopsy needle has been done but has been positive only in those patients in whom systemic symptoms of Hodgkin's disease; namely, night sweats, fever or pruritus have been present.

Results

The results of the surgical staging are summarized in Table 2.

Of the 15 patients in this consecutive series, 8 had disease discovered below the diaphragm by laparotomy which significantly altered or changed their clinical staging. It is of interest to note that if one were to consider only the gross abnormal findings at the time of exploration as noted by the operative surgeon about one-half of the early involvement with Hodgkin's disease would have been missed. The patient, EM, had an extremely tiny spleen weighing only 60 grams and was removed without other evidence of palpable or visible disease but despite this showed rather extensive involvement of the entire spleen with early Hodgkin's disease. The time consuming but necessary search for both paraduodenal and celiac axis nodes proves rewarding when one notes that this may be the only abdominal manifestation of early

TABLE 2

PT.	AGE	SEX	PREOP. CLINICAL FINDINGS	PREOP. STAGE	GROSS OPERATIVE FINDINGS	HISTOLOGIC APPEARANCE	POSTOP. FINAL STAGE
RB	31	M	Lt. neck and Rt. axilla	II B	Spleen apparently normal, all nodes enlarged	Splenic involvement and all nodes involved	III B
NC	21	M	Lt. neck and mediastinum	II A	Normal	Normal	II A
FD	37	M	Lt. groin and lt. lower abdominal mass	II A	Normal	Normal	II A
RA	32	M	Lt. neck	I A	Normal	Positive paraduodenal node only	III A
NL	56	M	Lt. neck only	I A	Normal spleen and nodes	Splenic involvement, nodes negative	III A
RP	29	F	Lt. neck and axilla and abdominal mass (preoperative drug therapy)	III B	Normal at laparotomy	Normal only hyalinized areas remain in spleen	III B
HB	40	M	Lt. neck and mediastinum	II A	Splenomegaly and common duct node enlarged	Spleen and common duct node positive	III A
RL	18	F	Rt. neck and axilla	II B	Normal	Positive paraduodenal node only	III B
RF	13		Lt. groin ? splenomegaly	I A	Normal	Normal	I A
RL	22	M	Lt. neck and lt. axilla and chest wall	IV A	Normal	Normal	IV A (localized)
AM	25	M	Bilateral axillary involvement and splenomegaly with hypersplenism	III B	All nodes enlarged and splenic nodules	All tissue removed involved except liver which was normal	III B
JT	62	M	Lt. axilla and splenomegaly	III B	Spleen enlarged. Most nodes enlarged as well, liver normal	All tissue positive in including liver involvement	IV B
AL	12	F	Rt. neck and rt. mediastium	II A	Spleen enlarged and celiac nodes enlarged	Both spleen and celiac nodes positive, liver normal	III A
EM	60	F	Rt. neck only	I A	Normal, spleen small (60) grams	Spleen densely involved	III A
AM	20	M	Bilateral neck involvement	II B	Normal	Normal	II B

disease and without this finding abdominal radiation might not have been given at this time.

The results in this series compare favorably with other reported series in the literature in which positive abdominal findings are noted in 30 to 35 percent of cases. It is also of some note that approximately 50 percent of patients with clinical splenomegaly and hepatomegaly that a normal histologic picture has been apparent after removal or biopsy.

There has been no mortality in this series to date. Two patients have had significant postoperative atelectasis that prolonged their hospital stay. There has been no unusual wound infection or septic complication. All patients in this series who would undergo radiation therapy were able to initiate their therapy within 3 weeks of the operative procedure.

SUMMARY

A series of 15 consecutive patients is presented to outline the technique and results of abdominal staging of early Hodgkin's disease. The fact that more than 50 percent of these patients are found to have clinically unsuspected disease would seem to warrant the routine use of this procedure prior to the initiation of appropriate radiation or chemotherapy.

7 Bramhall Street, Portland, Maine 04102

Hypernephroma Hepatopathy

David S. Wyman, M.D.

Because of its diverse modes of presentation,[1,2] hypernephroma has been called "The Internists' Tumor"[3] and "The Great Imitator."[4] It has masqueraded as fever of obscure origin,[5,14,15] polycythemia,[6] unexplained anemia,[3] amyloidosis,[1,9] neuropathy,[3] von Hippel-Lindau's Disease,[12] and Cushing's Syndrome.[13] Its outstanding features have presented as thrombocytosis,[7] hypercalcemia,[10,11] hyperhaptoglobinemia,[8] increased alpha-2-globulin,[16] and leukemoid reaction.[17] It has been associated with the appearance of varicocele,[2] and negative diagnostic abdominal exploration is not uncommon.[3]

More recently attention has been called to its propensity to induce a paraneoplastic syndrome characterized by abnormalities which deviate diagnostic attention toward the liver and spleen – notably increased serum alkaline phosphatase (SAP), abnormal BSP retention, and hypoprothrombinemia. This clinical situation has been variously termed "the hepatopathy of hypernephroma,"[18] "nephrogenic hepatosplenomegaly,"[19,20] and "reversible (nonmetastatic) liver cell dysfunction."[21,22,23] Since there has been ample demonstration of reversion of liver functional aberrations to normal after surgical elimination of renal carcinoma, tumor elaboration of an hepatotoxin ("toxohormone") has been suspected.[7,11,20] This report concerns a case demonstrating this hepatopathy as well as certain other nonurologic features of carcinoma of the kidney.

Case Report

A 41-year-old man presented with a 4 month history of fever, tachycardia, weight loss, and malaise. Positive physical findings other than those directly related to fever and weight loss were limited to one observer's suspicion of a palpable spleen. The following laboratory examinations were normal: ECG; T3; T4; Australia Antigen; ASO titer; mononucleosis test; stool guaiac; cultures of blood, urine, and stool; reticulocytes; SGOT and SGPT; ANA titer; Rheumatoid Factor; X-Rays of chest, gallbladder, colon, and gastrointestinal tract; calcium; phosphorus; BUN; uric acid; total protein; bilirubin; alpha-1-fetoprotein.

The following abnormalities were recorded: Hemoglobin 10.5 grams; hematocrit 36%; platelets 470,000; urinalysis showed 1-2 RBC with 10-15 WBC and 5-8 RBC with 3-5 WBC; SAP 300, 350, and 310 International units (normal (30-85); BSP retention 36%; Prothrombin time 19.3 seconds and 19.5 seconds, unresponsive to vitamin K (control 14.5 seconds); haptoglobin 500 and 632 (normal 25-165 mgs.%). On IVP, a small right intrapelvic lesion could not be completely excluded. On scanning, the liver appeared normal but the spleen was reported as enlarged with indication of "an infiltrative process compatible with lymphoma on its superior aspect."

Tachycardia and daily fever to 102 and 103 continued. On 12-15-71, laparotomy disclosed the right kidney slightly larger than the left but not otherwise abnormal. Liver biopsies showed nonspecific portal inflammation. Splenectomy was carried out. The spleen weighed 382 grams and was grossly and histologically normal. Lymph node biopsies provided no diagnostic information.

Postoperatively fever and weight loss continued. Eight weeks later right flank pain and gross hematuria occurred. After admission to another hospital, a right flank mass was palpated; pyelography demonstrated a tumor; and an 8x7x7 cm. renal cell carcinoma was removed. Again, no metastatic disease was evident. Radiation therapy to the right flank was carried out. Fever disappeared and the patient gained weight. On 5-1-72, the Prothrombin time was 100% but the SAP was 280.

Discussion

In 1961, Stauffer[19] first called attention to this unusual syndrome, reporting return of liver function tests to normal after tumor removal. Others have commented on this sequence.[20,21,22,23] In one series, 40% of 148 cases of hypernephroma showed abnormal studies of liver function. Of these, 41 revealed SAP elevation. The postoperative values appeared to have prognostic significance.[23] It has been emphasized that hepatic abnormalities in association with renal carcinoma do not usually reflect either primary or metastatic liver disease. In a number of instances, as in our patient, diagnostic laparotomy and splenectomy have been done with negative findings in this clinical situation.[3,23,24] In nearly all instances, no specific hepatic pathology has been encountered.[18] The disappearance of biochemical evidence of liver dysfunction does not, however, always reflect a definitive cure, and in some instances the same abnormalities have returned with the appearance of *extrahepatic* metastases. In at least one case, the abnormalities again disappeared after excision of a pulmonary metastasis.[18] Nephrogenic hepatic dysfunction has been reported secondary to xanthogranulomatous pyelonephritis[25] and to renal sarcoma.[26]

In this case, the more evident abnormalities (spiking fever, hepatic dysfunction, and the splenic scan) suggested an intraabdominal lymphoproliferative disorder and led to exploration. The renal tumor was not discovered, nor specifically suspected, until the "classic triad" of hypernephroma appeared – gross hematuria, flank pain, and palpable mass.

Although abnormal retention of BSP dye can be produced by fever per se,[28] it has been felt unlikely that SAP levels are affected by this mechanism. It is also unlikely that an ectopic phosphatase is being produced since this patient's SAP migrated in the hepatic zone on Alkaline Phosphatase Isoenzyme Electrophoresis. Regan's Isoenzyme[27] appears in the placental zone. Since the liver scan was normal and the micropathology constituted only minimal portal triaditis, regurgitation of alkaline phosphatase or retention on an obstructive basis probably did not occur. The suggestion therefore persists that some hypernephromas humorally produce potentially reversible biochemical evidence of hepatic dysfunction which is of considerable diagnostic importance.

Summary

The significance of apparent hepatic disease in the

diagnosis of renal cell carcinoma has been pointed out and other nonurologic features of this tumor have been reemphasized. Although the Prothrombin time returned promptly to normal and the patient's well being returned after surgery, the persisting elevation of the SAP warrants a guarded prognosis and suggests the existence of as yet inapparent, likely extrahepatic, metastasis.

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CORONARY BYPASS – WHO IS A CANDIDATE? — *Continued from Page* 191

disease occurs in conjunction with valvular disease or when it is complicated by papillary muscle dysfunction, ventricular aneurysm, or a ventricular septal defect. A discussion of these indications, however, is beyond the intended scope of this paper.

In summary, coronary bypass surgery is an effective form of treatment for patients with severe angina brought on by ordinary activity or emotion and for patients with unstable angina. The operative mortality in these patients is now less than 4%. In patients with associated congestive failure, operative mortality is increased and the failure itself is improved by surgery only when its cause is related to ischemic but viable myocardium. At present, prior myocardial infarction without angina is not considered an indication for surgery.

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A "Time Study" Approach to the Evaluation of Emergency Room Activities

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Introduction

A "Time Study" was done in the Emergency Division at the Maine Medical Center in September and October of 1970. The results of that study were used in the formulation of specific measures designed to improve care in the Division. We have repeated that study in an effort to determine the impact of the changes which have been made in the past year as it can be measured by the amount of time necessary to accomplish the component parts of a patient work up. This is a report of the 1971 study with a discussion of the implications drawn from it.

Study Design

As in the 1970 study, every fifth patient registering at the Emergency Division during a 14-day period was assigned to the study. The 14 days this year were October 2 thru October 15. The Emergency Division records for patient 5, 10, 15, etc. were prestamped on those days with the stamp shown below.

	Time
Arrival in E. W.	
Seen by Intern	
Studies ordered	
Studies complete	
Consult requested	
Consult answered	
Disposition made	

The Emergency Division personnel were asked to fill in the appropriate blanks. The time noted for "arrival in ER" this year was either the time when the patient was seen by the Triage Nurse or when the patient was placed in a treatment cubicle.

Because of problems in the collection of data concerning laboratory and x-ray studies, and the fact that the time study as conducted in 1970 did not differentiate between x-ray and laboratory, a supplemental survey of these two facets of our operation was conducted using consecutive patients on whom studies were ordered for a six-day period.

Each morning, the time study charts from the previous day were reviewed and the following data collected for each patient. (1) Time elapsed from arriving at the Division door until being seen by a Triage Nurse or being placed in a cubicle, (2) time elapsed between being seen by a Triage Nurse or being placed in a cubicle and being seen by a physician, (3) time elapsed between being seen by a physician and having studies ordered, (4) time elapsed getting studies done, (5) time elapsed between being seen by a physician and the physician requesting a consultation, (6) time elapsed in the consultant responding to the request, (7) time elapsed from completion of studies to disposition of case, (8) time elapsed from consultation to disposition of case, and (9) total time from arriving at the Emergency Division until disposition made. In addition, each patient visit was given a triage category number based on the following criteria: CATEGORY I – The patient's condition is immediately life threatening; CATEGORY II – The patient's condition is potentially life threatening; CATEGORY III – The patient's condition requires one or more of the special facilities of an emergency room; and CATEGORY IV – The patient's condition requires none of the special facilities of an emergency room.

The data was analyzed as in the 1970 time study. The range, mean, and median values were obtained for each of the 9 timed functions listed above. The values for steps, (1), (2), and (9) were further broken down by triage category. As happened last year, we were unable to get complete sets of data on each study patient. Last year, we assumed that this would have no effect on the validity of the partial sets of data, since we were primarily interested in comparing pieces of information within categories. This year, we tested this assumption by taking those complete sets of data that were available and comparing the mean values for each timed function with the mean values for the incomplete sets. The differences between mean values thus obtained were minimal and we, therefore, feel that use of the individual pieces of the incomplete sets is warranted.

The separation of complete sets of data this year also allowed us to look at the question of interaction of function for the first time. We analyzed the complete sets by 4 groups; (a) those patients who required lab and/or x-rays and consultation; (b) those patients who required only lab and/or x-rays; (c) those patients who required only consultation; and (d) those patients requiring neither studies nor consultation.

The data derived from the supplemental lab and x-ray survey was analyzed for range, mean, and median values by study ordered, i.e., x-ray, complete blood count, urinalysis for each of the day and evening shifts.

Results and Discussion

During the two-week period of the time study, 1,564 patients registered in the Emergency Division. This compares closely to the 1,543 patients seen during the 1970 study period. This year a total of 261 patients were in-

cluded in the study, also comparing closely to the figure of 258 during 1970.

The results of the study are displayed in Tables 1-4. Where it is possible to compare this year's results with those from 1970, the 1970 values are also listed in the tables.

TABLE 1

TOTAL CATEGORICAL VALUES

	Range		Mean		Median	
Function	1971	1970	1971	1970	1971	1970
(1)	0-82	0-95	[9.5]	[15.1]	5	5
(2)	0-65	0-150	[13.7]	[17.6]	10	10
(3)	0-102	0-90	11.1	11.4	5	5
(4)*	5-135	3-225	49.0	53	30	45
(5)	0-165	0-220	[33.3]	[47.6]	30	30
(6)	0-40	0-70	14.5	13.7	15	10
(7)	2-300	0-375	[17.1]	[26.0]	15	15
(8)	5-225	0-185	43.1	32.5	15	20
(9) Admitted	45-190	—	88.7	—	80	—
Non-Adm.	5-435	—	65.9	—	50	—
Total	5435	6-750	[66.9]	[74.2]	[50]	[70]

*See supplemental x-ray and laboratory survey for more detailed data

(1) = time elapsed from being "signed in" until being seen by Triage Nurse or being placed in room or cubicle.
(2) = time elapsed between being seen by Triage Nurse or being placed in room and being seen by physician.
(3) = time elapsed between being seen by physician and getting studies ordered.
(4) = time elapsed getting studies done.
(5) = time elapsed between patient being seen by physician and his requesting a consultation.
(6) = time elapsed in consultant responding to request.
(7) = time elapsed from completion of studies to disposition of case.
(8) = time elapsed from consultation to disposition of case.
(9) = total time from "signing in" until disposition made.

The results of the current study show that several of and timed functions take less time to accomplish than in the 1970 study (see brackets values in Table 1). The mean time for function # (1), the time between arriving at the emergency room and either being seen by a triage nurse or being placed in a cubicle decreased from 15.1 minutes to 9.5 minutes. This is primarily due to the institution of the Triage Nurse System and will be discussed in detail in a separate paragraph. The mean values for function # (2), the time between function # (1) and being seen by a physician decreased from 17.6 minutes to 13.7 minutes. This likely reflects the presence of the 2 more full-time physicians who were hired in July as does the decrease in mean value for function # (5), the time between being seen by a physician and making a decision to call for a consultation. One of the prime duties of the new full-time physicians in their role as supervisor, is to help the interns to realize as early as possible when a patient is going to require hospitalization, so that the admitting physician can be involved in the emergency management of the patient. Likewise, the decrease in mean time for function # (7), the time necessary to make disposition of a patient after studies are complete, probably reflects the supervisory influences of the full-time physicians as well as, perhaps, the "traffic control board" system of handling patient charts. Finally, the mean time for a complete visit decreased from 74.2 minutes to 66.9 minutes and even more significantly the median time decreased from 70 to 50 minutes. That means we now are able to accommodate 50% of our patients in 50 minutes or less, whereas only 39% of patients last year could be completely accommodated in the same period of time. This year only 8.4% of our patient visits took 2 hours or longer and 4.5% three hours or longer as compared to 19% and 7% respectively last year.

The rather marked increase in mean time between a consultation and disposition of a case (function # (8)) is of concern to us. As was the case last year, we suspect that this represents, in large part, the time necessary waiting for admission to the hospital. We tested this by comparing mean values for time of total visit for admitted versus non-admitted patients and found that there was a 22.8 minute difference, with the admitted patients the longer. It would appear, then, that we continue to have problems with the admitting process.

TABLE 2

EFFECTS OF TRIAGE SYSTEM (MEAN VALUES)

	Timed Function			
Triage Category	(1)	(2)	(1) & (2)	(9)
I & II	1.0	5.3	6.3	90
III	8.1	12.6	20.7	70.4
IV	12.8	17.7	30.5	55.9
TOTALS	9.5	13.7	23.2	66.9

The results listed in Table 2 would indicate that the Triage Nurse System has been a valuable adjunct to our total program. The time necessary for function # 1 represents the period of time a patient waits in the waiting room until "something" is done. Last year the "something" that was done was for the patient to be placed in a cubicle, usually by a secretary. The period of time the patient waited until being seen by a medical person then was really a total of functions # 1 and # 2. This year when a triage nurse is available, the first "something" that happens to a patient is being seen by a Triage Nurse who makes a medical judgement as to the emergence of the patient's problem. In the two-week period of the time study, we were able to staff with a Triage Nurse in only 16 out of 42 shifts. In spite of that, we were able to decrease the mean time to perform function # 1 from 15.1 to 9.5 minutes. If this is further analyzed by triage category, those patients deserving immediate attention (Category I & II) are seen by a Triage Nurse in an average of 1.0 minute and by a physician in 6.3 minutes. Category III patients waited an average of 20.7 minutes until being seen by a physician but had been seen by the nurse within 9 minutes and Category IV patients who had non-emergent, conditions had to wait a mean total of 30.5 minutes until being seen by a physician. This is consistent with our philosophy of treating patients in the order of

their need for care, rather than in order of arriving at the Division.

Table 3

Effect of Interaction on Time Required for Total Visit

Factors Involved	*Total Visit Time (9)*
Studies and Consult Obtained	135.9 min.
Only Consult Obtained	87.1 min.
Only Studies Obtained	74.4 min.
Neither Studies Nor Consult	51.8 min.

The analysis of complete sets of data for effects of interaction shown in Table 3 shows that there is a definite relationship between the number of separate functions involved in a patient visit, and the time necessary to complete that visit. When both accessory studies and consultations are obtained, the mean time for total visit was 135.9 minutes. The next longest mean time was when only a consultation was performed (87.1 min.) and reflects once again the problem of waiting for admission. Those patients on whom only studies were performed took a mean time of 74.4 minutes for the total visit, and finally, if neither studies nor consultation were obtained, the total visit only took an average of 51.8 minutes.

Table 4

Supplementary Laboratory and X-Ray Survey

Study Done	*Shift*	*Range*	*Mean*	*Median*	*% >60 minutes*
x-ray	Day		51.4		
	Evening		25.9		
	Total	5-135	38.7	35	25.3%
CBC	Day		99.9		
	Evening		61.0		
	Total	45-135	81.0	75	66.7%
Urinalysis	Day		67.0		
	Evening		60.3		
	Totals	25-115	64.0	65	60%

The supplementary lab and x-ray survey has more clearly defined our problems in those areas. The amount of time lapsed between ordering an x-ray and obtaining a reading is almost twice as long during the day shift as during the evening. This is likely due to the fact that all films are transported to main x-ray during the day for reading, while those taken at night are read by a resident in the emergency division x-ray unit or are returned to the Emergency Division for the house officer to read. Routine laboratory procedures continue to present problems if disposition of the patient requires completion of those procedures. The average time between specimens leaving the Emergency Division and results being called back were 81.0 and 64.0 minutes respectively for CBC's and urinalyses.

Conclusions

It seems valid to draw the following conclusions from the comparison of the two time studies:

(1) There has been some definite improvement in the delivery of care in the Emergency Division over the past year as can be measured by the amount of time necessary for patients to wait for specific parts of the work-up.

(2) The improvement can be traced, at least by inference, primarily to the hiring of 2 more full-time physicians, and to the institution of the Triage Nurse system.

(3) Further improvement could be anticipated if we were able to staff full time with Triage Nurses and full-time physicians.

(4) The functions which require the greatest length of time continue to be lab and x-ray, consultations, and waiting for admission.

(5) The average time necessary to obtain the routine laboratory studies is greater than the average time necessary for the total patient visits.

The results of this set of time studies will be used in the coming months by the Emergency Division Advisory Committee in their continuing discussion as to how care in the Emergency Division can be improved.

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TOTAL HIP JOINT REPLACEMENT AT THE MAINE MEDICAL CENTER

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1. The procedure is basically an excellent one.
2. The operating time is for the most part less than two hours.
3. Almost all the patients are out of bed by the fifth postoperative day and discharged from the hospital between 2-3 weeks.
4. Early partial weight bearing is allowed and crutches and cane may be discarded at will after 3-4 months.

In conclusion, total hip joint replacement using bone cement is proving to be a very successful and worthwhile procedure. This bone cement is about to be used in other orthopedic procedures; namely, total knee replacements and certain pathological fractures that cannot be otherwise firmly fixed.

Hyperalimentation in Infancy

Experiences at the Maine Medical Center

ARTHUR KAEMMER, M.D.* and J. DANIEL MILLER, M.D.*

One of the most promising advances in the field of Pediatrics in the past decade has been the successful demonstration that small infants can develop normally receiving their total nutrition by the intravenous route. Due to the "Lifeline," infants who previously could not survive because of various types of bowel dysfunction are now salvageable. The following report is an attempt to summarize the applications and hazards of total parenteral nutrition, and to compare the Maine Medical Center experience with those of other institutions.

Historically, the concept of parenteral nutrition can be traced back to the 17th century. Major advances, however, were not made until the present century when glucose and water solutions were first given intravenously. In the 1930's, the development of lipid emulsions seemed very promising because of their high caloric and low osmotic characteristics, but as a result of complications lipid emulsions gradually became unpopular and they were removed from the market. The use of protein hydrolysates provided a major breakthrough in the field of parenteral nutrition, but stumbling blocks remained with the inability to provide adequate calories and to maintain positive nitrogen balance without an accompanying carbohydrate input.

Hyperalimentation using a combination of high protein and high carbohydrate nutriment was first developed by Dudrick[1] at the University of Pennsylvania in 1967. Working with beagle puppies, he achieved good weight gain with an intravenous solution containing 0.9 cal/cc, given over a period of many weeks. Studies were next carried out on a number of infants with absorption problems, and good weight gains were effected despite zero oral intakes.

Theoretically, any infant who is unable to take food orally, or who is unable to absorb nutrients through intestinal mucosa, is a potential candidate for the Lifeline; however, it has become evident that careful selection must be employed in deciding which patients receive the Lifeline. The one primary indication for the Lifeline should be those infants with severe but temporary bowel dysfunction. In any instance in which tube feedings, gastrostomy, or conventional intravenous therapy can be used to achieve the same goals, the Lifeline should be avoided. The Maine Medical Center format for mixing the hyperalimentation fluid is as follows:

1. Mix 500cc of Hyprotigen 10% with 500cc of Dextrose 40% (Hyperalimentation Kit, a product of McGaw Laboratories)
2. Add to this solution:
 a. Vitamin B12 (0.03 mg/cc) 0.3cc
 b. Multivitamins (MVI) 1.5cc
 c. Vitamin K 0.3 mg. or 0.1cc
 d. Electrolytes to bring the final concentrations of Sodium and Chloride to the 40-50 meq/1 range, Potassium to the 25-35 meq/1 range, Calcium to the 15 meq/1 range and the Magnesium to 8 meq/1 range.

This solution provides roughly 0.9 cal/cc and in tiny infants is given at a rate of approximately 135cc/KG/day. Transfusion once or twice weekly with whole blood or packed cells is necessary to provide trace elements and essentially fatty acids.

The technique of catheter placement[2] is extremely important. A silicone catheter is placed into a central vein in the operating room under sterile conditions, usually in the external or internal jugular vein, with the distal tip in the superior vena cava and the proximal end being tunneled beneath the skin of the neck to prevent contamination. A Millipore filter to remove bacteria and impurities is placed between the catheter and the intravenous tubing, and the fluid is delivered at a slow, uniform rate by a constant infusion pump.

The management of a patient on the Lifeline becomes a very time-consuming task. Daily weights and accurate fluid and urine losses are mandatory in determining fluid and electrolyte balance, and urine must be monitored for sugar, in order to avoid osmotic diuresis. Frequent cultures of catheter, blood, and I.V. bottles must be taken both for bacteria and fungi, since the most frequent complication is sepsis, often due to Candida albicans. Laboratory examinations such as hematocrits and serum electrolytes should be done several times weekly, as they provide the best measure of hyperosmolality and/or anemia. Intravenous solutions, tubing, and filters must be changed daily and there should be careful daily cleansing of the catheter site and daily dressing changes.

Besides sepsis, other reported complications with Lifelines[3] have been: hyperglycemia, osmotic diuresis, venous thrombosis, vena caval perforation, hypersensitivity reaction, and cholestasis.

Four infants have received hyperalimentation at the Maine Medical Center since inception of the technique, and their case reports follow (also summarized in Table 1):

CASE REPORTS

Patient C. W. – (Case #99888) was transferred to MMC at nine days of age with severe peritonitis. She had been operated elsewhere for mid-jejunal atresia shortly after birth with resection and end-to-end anastomosis which subsequently became

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TABLE 1

SELECTED PARAMETERS OF FOUR PATIENTS UNDERGOING PARENTERAL HYPERALIMENTATION (LIFELINE)

	CW	JJ	MM	CL
# of days on Lifeline	39	32	23	43
weight before/after Lifeline	5#-14/8#-8	19#-5/17#-0	5#-11/6#-12	4#-3/7#-0
Return of serum proteins to normal within 3-4 weeks on Lifeline	Yes	Yes	No	Yes
Hepatic dysfunction: Bilirubin	—	↑	—	↑ ↑
Hepatic dysfunction: SGOT	↑	↑	↑	↑ ↑
Hepatic dysfunction: LDH	↑	↑	↑	↑ ↑
Hepatic dysfunction: Alk. phos.	↑	↑	↑	↑ ↑
Intermittent fever without positive cultures	No	Yes	No	Yes
Positive Lifeline culture at termination	Pseudomonas	Pseudomonas	No	No
Hyperglycemia on Lifeline	One week (mild)	No	No	No
Glycosuria on Lifeline	trace	No	trace	No
Anemia requiring transfusion on Lifeline	Yes	Yes	Yes	Yes
Current status	Alive at 30 months, well	Alive at 24 months, retarded	Alive at 12 months, retarded	Dead

necrotic, spilling intestinal contents into her abdomen. Shortly after her arrival, she was rehydrated and taken to surgery where additional resection and ileojejunostomy was performed. In anticipation of a long-term parenteral feeding, hyperalimentation was begun via the Lifeline soon after surgery, at which point her weight was 5# 14 oz. Thereafter she made a remarkable and speedy recovery with excellent healing of her numerous abdominal incisions. The child gained two pounds on the Lifeline in the first two postoperative weeks, and oral feedings were begun in small amounts 4 weeks later. The Lifeline was discontinued after 39 days and the baby was discharged from the hospital weighing almost nine pounds on the 46th hospital day.

Patient J. J. – (Case #109345), a 9-month-old boy, was transferred from another hospital for evaluation of week-long fever, intermittent vomiting and diarrhea. His abdomen became severely distended en route, and at the time of his admission to MMC, fever, tachycardia, irritability and surgical abdomen were significant findings on physical exam. A barium enema confirmed the diagnosis of ileocecal intussusception. Reduction was performed in the operating room, but seven days later resection of a segment of necrotic small bowel and an ileo-colic anastomosis were necessary. Six hours postoperatively, the patient developed hypothermia, hyperkalemia and cardiac arrest for which he was successfully resuscitated. The following day because of neurologic deterioration, hypoproteinemia and anticipated lengthy parenteral feedings, hyperalimentation was begun and continued for a total of 32 days. Despite his marked CNS impairment, he gained more than 3 pounds in the first two weeks on the Lifeline. Intermittent fever spikes occurred despite continuous antibiotic therapy, but repeated cultures failed to yield a causative organism. The patient's weight declined as P.O./tube feedings were gradually reinstituted, and the hyperalimentation was stopped at 32 days because of suspected sepsis; culture of the catheter tip yielded Pseudomonas aeruginosa. The child was discharged on the 55th hospital day with severe residual brain damage (secondary to hypoxia) weighing approximately two pounds less than on admission but feeding adequately.

Patient M. M. – (Case #129868), a 4# 13 oz. premature girl who was subsequently proven to have the Congenital Rubella Syndrome, was transferred to MMC at 10 days of life in congestive heart failure. She underwent successful ligation of a large patent ductus arteriosus at 3 weeks of age. Several episodes of bloody diarrhea resolved spontaneously over a period of seven days, but two weeks later she developed a bacterial osteomyelitis of the right knee for which she was successfully treated. After another episode of bloody diarrhea, a barium enema demonstrated stenosis of the proximal transverse colon. Surgery was postponed until the child's intercurrent problems could be managed, and she was discharged on the 62nd hospital day. Three weeks later she was readmitted weighing 5# 13 oz. and was begun on the Lifeline to prepare her for surgery. After two weeks, her weight had increased to 6# 12 oz. and primary resections of both small bowel and transverse colon atresias were performed. Five days postoperatively, the Lifeline cannula was removed; its tip grew no organism on culture, and the baby was discharged on the 29th hospital day at a weight of 6# 11 oz.

Patient C. L. – (Case #141168A), a 4# 13 oz. preterm female, was noted at birth to have a firm, pedunculate mass, attached near the junction of the umbilical cord and abdomen. Under the impression of omphalocele, this mass was explored shortly after birth and found to contain an atretic segment of small bowel and much unidentifiable gelatinous material. The atresia was resected and a suitable end-to-end anastomosis created. The child did well for several days postoperatively, then failed to tolerate oral feedings. Histologic sections of the mass revealed numerous foci of embryonic bowel tissue without mucosa or lumen, several of which showed reduplication. Several studies of the upper and lower GI tracts subsequently showed a patent anastomosis but marked dilatation of proximal small bowel and a total intestinal length estimated at 20-25% of the normal complement. The diagnosis thus became one of severe midgut atresia, and on the 8th hospital day parenteral hyperalimentation via the Lifeline was begun. Several replacements of the venous cannulae were necessary in the first week due to thrombosis. The child gained over one pound during the first two weeks of therapy, but effective peristalsis was never achieved. Several fever spikes caused concern, but numerous cultures failed to reveal a causative organism and antibiotics were not administered. Vigorous attempts to relieve the massive proximal small bowel distention and restore peristalsis were unsuccessful, and deteriorating liver function became a problem after one month on the Lifeline. Six weeks after it was inserted, the cannula was removed because of thrombosis and of necessity P.O. feedings were attempted. Four days later Enteropathogenic E. coli were recovered from her loose, bloody stools and Ampicillin and Kanamycin were started. Ten days later, her stools were free of

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Acute Respiratory Distress Following Non-Thoracic Trauma*

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In recent years, increasing interest in trauma therapy has resulted in a higher rate of patient survival through the initial shock phase but accompanied by an increased incidence of later mortality due to acute progressive respiratory distress, even when there is no direct thoracic injury. This problem of pulmonary insufficiency can arise from a multitude of causes. Variations of this same respiratory distress syndrome are present in clinical entities termed *Da Nang lung, congestive atelectasis, post-perfusion lung, fat embolism,* and *shock lung*[1] and in respiratory distress states following severe burns,[2] massive soft tissue and osseous trauma,[3] massive blood replacement, septic shock, disseminated intravascular clotting, and over-infusion of crystalloid solutions[4] in the treatment of hypovolemic shock.

Clinical Symptoms

The onset of clinical symptoms varies with the magnitude and nature of the initial trauma and its early treatment. Beginning 24 to 96 hours after injury, tachypnea, dyspnea, and cyanosis may appear and progress to frank respiratory insufficiency, exhaustion, and respiratory or cardiac arrest within 48 to 96 hours after the initial stress. Inhalation therapy with 100% oxygen administered by mask or nasal catheter usually provides only temporary improvement in color and ease in ventilation. Early auscultation of the lungs usually yields normal findings.[1] Within 48 to 96 hours, râles and tubular breathing may be heard in conjunction with the radiological appearance of diffuse patchy densities of both lung fields. The rapidity of progression of both auscultatory and radiological findings will be influenced by superimposed pulmonary infection, particularly with *Pseudomonas aeruginosa.*

Pathology

Pathological changes vary with the nature of the trauma, the degree of pre-existing pulmonary disease, the stage at which the lungs are examined, and the effects of superimposed infection and supportive therapy. Common to most cases following severe non-thoracic trauma are pulmonary arteriolar obstruction by fat emboli, platelet-fibrin aggregates, small and large thrombi, interstitial edema, loss of surfactant and alveolar collapse, intra-alveolar extravasation of plasma or blood, and hyaline membrane formation. As the syndrome progresses, consolidation and bacterial bronchopneumonia supervene.[5] The bases of the lungs are most severely involved in both early and late stages. Patients dying with respiratory insufficiency often show progression of bronchopneumonia to the apices as well.

Radiological Changes

The earliest radiological changes include diffuse radiodensities of both lungs often thought to be consistent with the pulmonary edema. Such patchy densities may also seem to represent aspiration pneumonia or rapidly spreading bronchopneumonia. Even in the presence of severe clinical symptoms of respiratory insufficiency significant radiological changes may not be apparent until 24 to 48 hours after the onset of respiratory symptoms. Within one to two days of the first appearance of pulmonary infiltrates, rapid progression to patchy confluence and consolidation usually occurs.[6] Overinfusion of resuscitative fluids may exaggerate the timing and degree of radiological changes. Free pleural space fluid is unusual in the absence of infarction due to large thrombi or in the absence of associated thoracic trauma.

Physiological Changes

The earliest changes in pulmonary gas exchange vary according to whether the initial pathological change is pulmonary arteriolar obstruction due to macro- or micro-embolism secondary to trauma itself or physico-chemical changes in the plasma, or whether fluid transudation into alveoli is the primary event. The vascular lesion results in localized ventilation without perfusion, alveolar collapse, and secondary fluid transudation. Mixed venous blood flowing to such pulmonary segments is shunted around the alveolus and produces peripheral arterial oxygen desaturation and cyanosis if extensive areas are involved.[7] At the time of onset of the earliest clinical symptoms, pulmonary function tests indicate increased minute respiratory volume and rates in excess of 30 per minute. Arterial oxygen tension is usually reduced to levels below 60 mmHg. and is not significantly increased by 100% oxygen inhalation therapy. With the patient breathing room air, the alveolar-arterial oxygen gradient is increased and is improved only slightly by 100% ogygen inhalation. After hypovolemic shock has been adequately treated and systemic perfusion restored, arterial pH is usually normal, the PaO_2 usually 60 mmHg. or lower, and the $PaCO_2$ usually low because of hyperventilation.[1] The degree of pulmonary arterio-venous shunting may be estimated by observing the effect of breathing 100% oxygen in a closed system for at least 20 minutes on change in the arterial PaO_2. In the normal individual breathing room air, the arterial PaO_2 should be in the range of 65 to 85 mmHg. With 100% oxygen, the PaO_2

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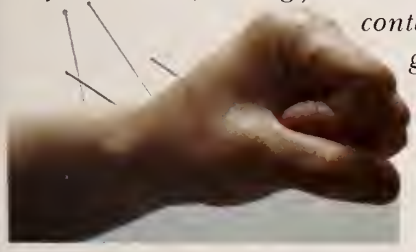
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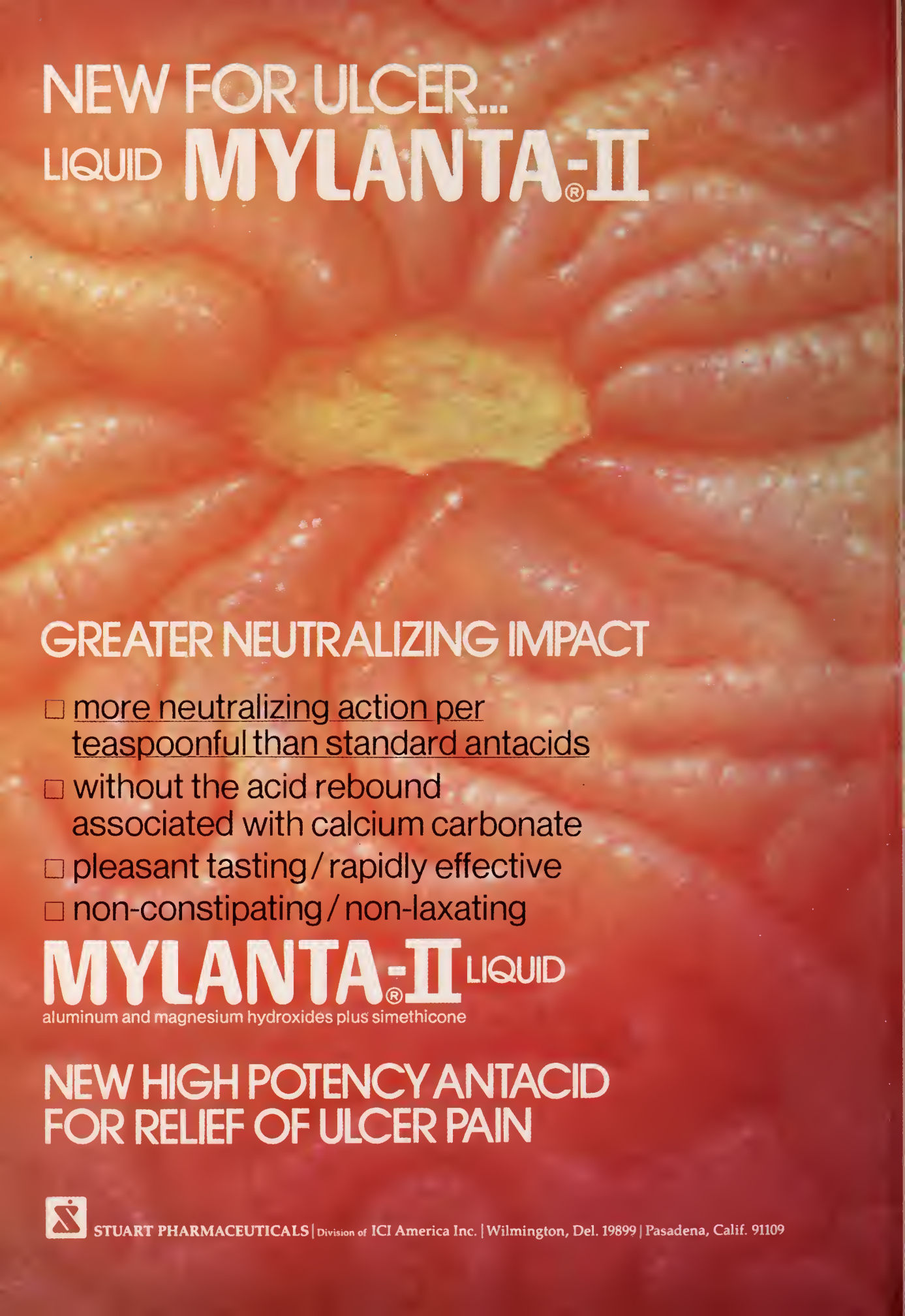
Dosage and Administration: The recommended daily dosage for adult oral therapy is one 15-mg. tablet with meals and two at bedtime. Subsequent adjustment to the patient's requirements and tolerance must be made.

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should rise to levels of 200 mmHg. or higher. With significant shunting, the PaO_2 may not rise above 150 mmHg. When significant numbers of alveoli are not aerated because of bronchiolar obstruction or fluid extravasation into alveoli, shunting also occurs. Under the latter circumstances, the *functional reserve capacity* (FRC), which is the air volume remaining in the lungs after a normal expiration and an estimate of total alveolar volume, is reduced.[7] The progressive loss of lung compliance caused by interstitial edema may contribute to impaired mechanical ventilation and increased dead space which in turn may result in inability to vent CO_2. A steady rise in arterial $PaCO_2$ is frequently a pre-terminal event.[1]

Treatment

At present there are three basic tenets of management. These are: (1) early recognition of incipient acute respiratory distress and prompt measures to preserve and improve pulmonary gas exchange; (2) pharmacological efforts to prevent further micro-embolism and ameliorate the effects of arteriolar obstruction; and (3) prevention and treatment of pulmonary infection. Important factors in the early management of the severely traumatized patient are avoidance of over-infusion of crystalloid solutions, (which will contribute to pulmonary interstitial edema), maintenance of normal plasma oncotic pressure with colloid solutions, proper technic in preventing infection in patients in whom an artificial airway has been inserted, and early monitoring of arterial PaO_2.

The current mainstay of treatment is the use of mechanical respirators to improve the efficiency of respiration by controlling the inspired gas mixture and by assisting or controlling ventilation. Ashbaugh and associates[1] contend that continuous positive pressure breathing (CPPB) will increase FRC and reduce shunting by keeping alveoli open during all phases of respiration. Kumar[8] adds that positive intrabronchial pressure will aid in reducing interstitial edema by increasing interstitial pressure with consequent improvement in gas exchange across the alveolar walls.

Dangers in their use include inappropriate use of pressure-controlled versus volume-controlled machines, failure to adequately humidify the commercially dry oxygen, and oxygen toxicity. The latter is related to both concentration and pressure and is likely to occur with use of 100% oxygen at sea level after more than a few hours[9] and within minutes at four atmospheres of pressure.[10] This observation is pertinent to current controversy in the use of positive pressure ventilation. Increased incidence of changes attributed to oxygen toxicity have been observed in patients receiving CPPB with oxygen concentrations over 70% for more than a few days.[11] Furthermore, reduction in cardiac output during CPPB due to reduced venous return to the right heart may be an undesirable side effect in certain patients.[15] Such effects are particularly likely to occur with pressures above 10 cm. of water.[13]

Powers[7] argues that the safest and most effective approach is the use of positive end-expiratory pressure (PEEP) with oxygen concentrations no higher than 50%. He recommends that end-expiratory pressure be set initially at 6 cm. of water with oxygen concentration (P_IO_2) of 50% and PEEP be gradually increased if arterial PaO_2 cannot be maintained above 60 mmHg. The upper limit of PEEP is 15 cm. of water. The end-expiratory retard should then be reduced as rapidly as possible while maintaining a PaO_2 above 60 mmHg.

Endotracheal intubation and curarization may be necessary to prevent the patient from fighting the machine's rhythm and to obtain maximal efficiency. Oxygen demand is also reduced secondary to reduced muscular activity. The use of cooling blankets in febrile patients is useful for the same purpose. Intensive nursing care is essential for curarized patients in light of the consequences of mechanical dysfunction.

Prevention of infection must be taken seriously, particularly in patients with tracheal intubation by tube or tracheostomy. The use of masks, sterile gloves, reverse isolation, and aseptic technic during tracheal suctioning cannot be over-emphasized. Various observers disagree concerning the prophylactic use of broad-spectrum antibiotics versus specific therapy based upon periodic airway cultures. The most common complication in such patients is superinfection resulting from prophylactic use of frequently changed antibiotics.

Controversy remains regarding the use of various pharmacological agents designed to reduce pulmonary edema, prevent further micro-embolization, and restore normal physico-chemical plasma properties.[1,4,5,7] These include infusion of over 100 grams of salt-poor albumin daily, diuretics, digitalis, mannitol, heparin, low molecular weight dextran, and hydrocortisone. From a number of case reports may be gleaned what appear to be rational general measures which were common to successful therapeutic programs. These include avoidance of excessive early volume replacement, the use of blood volume determinations and body weight rather than central venous pressure measurement as indications of adequate volume replacement, the early use of salt-poor albumin to maintain plasma oncotic pressure, and in patients with congestive heart failure the prompt use of diuretics and digitoxin. Evidence for beneficial effects of heparin or dextran in preventing further micro-embolization of fat or platelet-fibrin aggregates is less convincing. There is support for the use of hydrocortisone, particularly in the presence of fat emboli in dosage as high as 400 mg. every four hours in maintaining the integrity of the alveolar endothelium and in favorably affecting intrapulmonary vascular shunting in the early stages of the distress syndrome.[14] Some of the complexities of management are highlighted in the history of a successfully managed patient.

Case History

A 22-year-old female was admitted May 14, 1972, to the Emergency Division of the Maine Medical Center one hour after a motorcycle accident. She sustained fractures of the right femur, right clavicle, right hand and had a contusion of the right an-



Fig. 1. Chest film of a 22-year-old girl shortly after multiple trauma including fractures of the right femur, right clavicle, right hand and contusion of the right anterior chest wall. There is an overall patchy density throughout the right lung field felt to represent lung contusion. Both lungs are well expanded with no evidence of pleural effusion. The interstitial infiltrate was not present the following day; however, a right pleural infiltrate was seen.

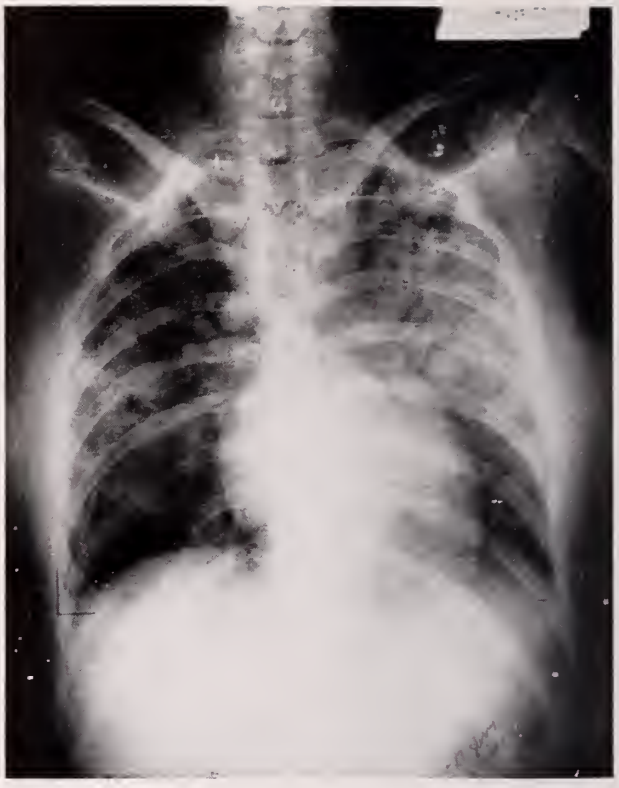


Fig. 2. Chest film 72 hours after initial trauma, showing a diffuse patchy density in both lung fields, particularly in the left upper lobe, along with engorgement of the central hilar vessels, and felt consistent with diffuse pulmonary edema.

terior chest wall. She was alert and oriented but exhibited tachypnea of 30 per minute, labored respiration, and perioral cyanosis. The arm blood pressure was 90/45 mmHg., the pulse rate 120 per minute, and the blood count and urinalysis were within normal limits. Initial supportive therapy consisted of intravenous administration of whole blood and Plasma-lyte 148 in water* followed later with dextrose and saline solutions and dextran-40 500 cc. every 12 hours until urine flow rate was established, 100% oxygen by mask, immobilization of fractures, and intravenous sodium cephalothin** 1.0 gm. every six hours. The first chest roentgenogram indicated a fine patchy increased density over the right lung but with bilateral lung expansion and no evidence of rib fractures (Fig. 1). During the first 36 hours after admission to the Special Care Unit, she breathed comfortably while receiving 40% oxygen by mask. Her admitting blood gas determinations were as follows: PaO_2 52 mmHg., $PaCO_2$ 27 mmHg., and pH 7.47. By 48 hours after admission, the PaO_2 began falling despite increases in inspired oxygen concentration (F_1O_2) to 100%. Chest roentgenogram at this time showed a moderate right pleural effusion and disappearance of the initial right lung infiltrate.

Sixty hours after admission her condition began to deteriorate rapidly. Her temperature was 103°F., respirations 35 per minute and shallow, egophony was present over the left upper lobe, and petechiae were present along the axillary folds of the skin and in the conjunctivae. Her superficial wounds and catheter sites did not appear infected. Microscopic examination with polarized light of the supernatant of freshly centrifuged urine revealed a fat body in every third or fourth high power field. Gram stain of the sputum indicated predominant gram negative rod forms. Blood gas determination at this point while she was breathing 100% oxygen by mask indicated a PaO_2 of 37 mmHg. and a $PaCO_2$ of 25 mmHg. The chest roentgenogram now showed bilateral patchy densities, vascular engorgement and cardiac enlargement, and was thought to be compatible with severe pulmonary edema (Fig. 2). It was thought that acute respiratory distress syndrome due to fat embolization was present with superimposed coliform infection. Therapy consisted of endotracheal intubation, sedation and curarization, ventilation with a volume-controlled respirator set to deliver 100% oxygen and end-expiratory pressure of 9 cm. H_2O. In addition, Keflin intravenously, 3 gm. every six hours, intravenous hydrocortisone, 200 mg. every six hours and heparin intravenously, 4,000 units every four hours was started.

By May 18th when this regimen had been in effect for 12 hours, arterial oxygen tension began to rise to levels above 60 mmHg. At this time the blood gas determinations were PaO_2 65 mmHg., $PaCO_2$ 29 mmHg., while the chest roentgenogram indicated a progression of change to consolidation bilaterally of the previously hazy diffuse infiltrate (Fig. 3). Other studies at this time indicated microscopic hematuria, hypoalbuminemia, anemia, and a positive ethanol gelatin test indicating increased amounts of split fibrin products in the plasma as well as a markedly elevated plasma fibrinogen concentration. Gentamicin, 60 mg., I.M., every eight hours was started in addition to Keflin. During May 18, 19, and 20, each time an attempt was made to reduce P_1O_2 while maintaining PEEP at 15 cm. of water, the PaO_2 dropped precipitously to levels of 60 mmHg. (Table I). The administration of Furosemide beginning May 19 was fol-

*(Baxter) Parenteral solution containing *140* mEq Na, *5* mEq K, *98* mEq Cl, *3* mEq Mg, *27* mEq bicarbonate (as acetate) and *23* mEq gluconate per liter.

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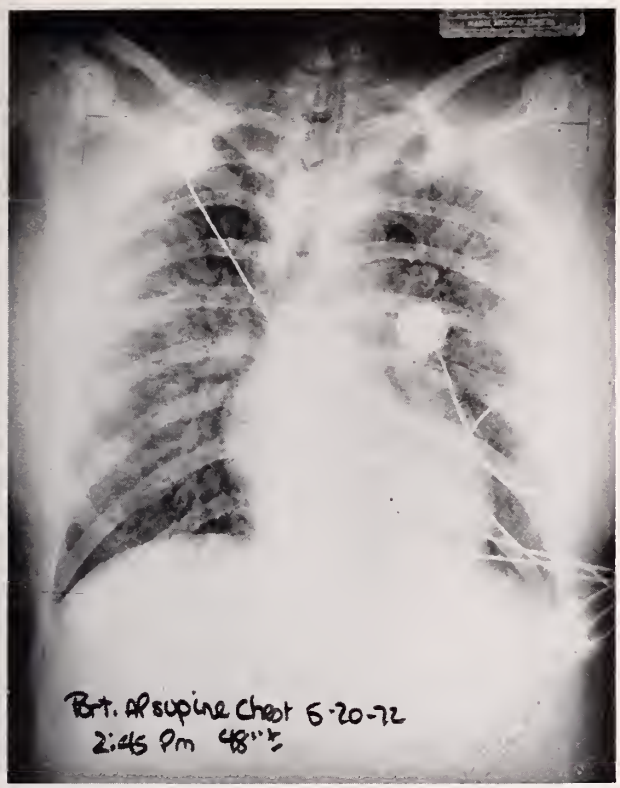


Fig. 3. Chest film six days after injury showing a more consolidated pattern in both lung fields.

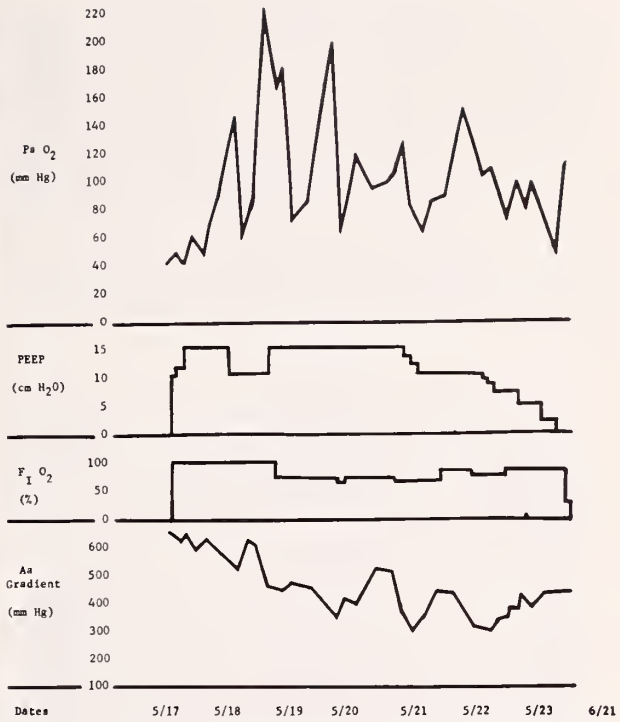


Table 1. Serial determinations of arterial oxygen tension (PaO_2), positive end-expiratory pressure (PEEP), inspired oxygen concentration (P_IO_2), alveolar-arterial oxygen tension gradient (A-a gradient) during therapy.

lowed by a marked diuresis and immediate improvement in PaO_2 permitting reduction in $_IO_2$. On May 20, the endotracheal tube was replaced by tracheostomy with a cuffed tube. Progressive improvement followed and by May 23, the ninth day after admission, it was possible to progressively reduce PEEP to zero, $_IO_2$ to room air, and wean her off machine control of ventilation. Keflin and Gentamicin were stopped after 10 day courses, with Erythromycin, one gm. I.V., every six hours being continued.

Two weeks after admission recurrent fever and productive sputum were associated with heavy culture of *E. coli,* sensitive to Gentamicin, from the sputum and a reappearance of diffuse patchy pulmonary infiltrates in the chest roentgenogram. Therapy with Gentamicin, 70 mg., I.M. every six hours and a resumption of machine assisted respiration with 50% oxygen and PEEP of 10 cm. water was necessary to maintain PaO_2 tensions above 60 mmHg. She recovered from this setback and by the 25th hospital day was again free of the need for ventilatory support and was transferred to the Orthopedic Service for further management of her fractures.

Comment

This patient demonstrated many typical features of the acute respiratory distress syndrome as well as several of the pitfalls in management. Her predominant injuries stemmed from the effects of deceleration and from her femoral shaft fracture, and consequentially she developed massive micro-embolism with fat and platelet-fibrin aggregates. The physiological effects on pulmonary perfusion-ventilation were not apparent until approximately sixty hours after injury at which time severe and rapid deterioration in respiration was associated with relatively undramatic chest roentgenographic changes. Early attempts to improve arterial oxygen tension by means of 100% oxygen mask therapy were unsuccessful. Respiratory support with machine-controlled respiration, cuffed tube, and positive pressure ventilation were only slightly more successful. Dramatic clinical improvement as well as improvement in respiration followed the use of potent antibiotics, hydrocortisone, heparin, and diuretics and there appeared to be little question that one or all of these agents were responsible. It is not possible to determine to what extent oxygen toxicity may have played a role in contributing to the duration of her distress syndrome although she received 100% oxygen at significant pressure levels for only 24 hours. It is also hard to determine how much her positive water balance may have exaggerated her problem. An indication of the severity of her pulmonary arterio-venous shunting was obtained on May 18 when PaO_2 was determined before and after 20 minutes of 100% oxygen breathing. The PaO_2 rose to 140 mmHg., indicating a severe degree of shunting. The use of the "shunting" test beginning with the day of injury and repeated daily would serve to detect incipient changes of impending respiratory distress syndrome and, perhaps, permit appropriate therapy earlier and prevent or reduce the evolution of the full syndrome.

Summary

The syndrome of acute respiratory distress following trauma requires immediate treatment directed toward correcting impaired gas exchange in the lungs. Early recognition of the impending syndrome may be facilitated

by tests for fat and platelet-fibrin aggregate embolization and by testing serially for evidence of increasing pulmonary arterio-venous shunting. Ventilatory support is indicated when the patient cannot maintain an arterial PaO_2 of 75 mmHg. while breathing room air. Then, one should limit inspired oxygen concentration to 50% or lower while using intermittent positive pressure ventilation and, if adequate oxygenation still cannot be achieved, employ positive end-expiratory pressure progressing to no higher than 15 cm. H_2O. Prevention and adequate therapy of pulmonary infection is essential to recovery.

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pathogens, but without parenteral hyperalimentation her bowel defect was incompatible with survival and she expired at 65 days of age. Autopsy revealed severe cholestatic jaundice and a total bowel length of approximately twenty inches from pylorus to distal rectum.

Summary of Clinical Data

From the case presentations and Table 1, several generalizations can be made. Weight gain in three of our four patients was prompt and satisfactory, and also in three the serum proteins (quantitative) returned to normal rapidly. Two patients had distressing intermittent fevers, but despite fears of sepsis, no offending organisms could be isolated and the fevers subsided spontaneously. Fever alone, therefore, must always alert the clinician to the possibility of infection but need not necessarily mean cessation of Lifeline therapy. Patient J. J. developed fever at about the same time his Lifeline therapy was to be discontinued. Subsequent culture of the cannula tip yielded Pseudomonas (which was successfully treated without adverse sequelae) but a simultaneous blood culture grew no pathogens. Hyperglycemia and glycosuria were at no time significant in our series, but these parameters (along with serum sodium and urinary volume) are important in assessing possible hyperosmolality and hyperosmolar diuresis. Anemia, on the other hand, was a constant finding in our patients, and its mechanism is unclear. Frequent transfusions of packed RBC's were necessary to provide both red cell volume and necessary trace metals present within the erythrocyte itself. The single most disturbing problem in all our patients has been the inevitable deterioration of liver function as manifested by rising levels of bilirubin, SGOT, LDH and alkaline phosphatase, usually after the third week of Lifeline therapy. Patient C. L. had gross evidence of cholestatic jaundice at autopsy, but it is doubtful she would have survived even with adequate hepatic function. Our remaining three patients are alive, however, and show no evidence of significant liver enzyme elevation, suggesting reversibility of the hepatic dysfunction.

Parenteral hyperalimentation has been proven an effective new technique in prolonging life. The very success of the method, however, has now placed on the clinician the burden of deciding which lives are to be prolonged.

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Current Aspects of Venereal Disease Control in Maine

Peter J. Leadley, M.D. and Charles T. Lindman, A.B.*

Maine has been experiencing an increase in the incidence of venereal diseases. In Maine particularly, and to a lesser extent in the United States, this increase has been primarily in gonorrhea. Table 1 shows the new case rates for gonorrhea and primary, secondary and early latent syphilis combined for Maine for the decade 1962 through 1971. The figures on this table indicate clearly that the gonorrhea rate has increased approximately 500% over the past decade, while the syphilis rate has remained essentially unchanged. These data are even more significant when one recognizes that a survey done in 1968 indicated that approximately one-fifth of gonorrhea cases are actually reported to the Health Department in Maine. This would suggest that approximately 4,000 to 5,000 cases of gonorrhea actually occur in Maine each year, giving an actual case rate of approximately 400 to 500 per 100,000. The same survey also suggested that reporting of syphilis was low, but this conclusion was based on small numbers, and other information available to this Bureau suggests that the reporting of syphilis is, in fact, quite good. Over the course of the past five years, no case of infectious syphilis has been detected through case contact interviewing or serological survey techniques which *had* sought medical attention and which *had not* been reported. This observation suggests that the vast majority of patients with syphilis, who seek medical care in Maine are, in fact, reported to this Department. This probable disparity in the reporting of venereal disease is another factor which makes the increased rate of gonorrhea even more significant. It is necessary to point out that increase in gonorrhea occurred during a period when extensive physician visitation was being conducted by the Venereal Disease Control Program. We have some information which suggests that a small proportion of this increase is due to more efficient reporting of gonorrhea by physicians. However, this is not enough to explain the total increase in gonorrhea. Corresponding information for the national occurrence of gonorrhea and syphilis is presented in Table 2. This suggests that Maine's experience with venereal disease is quite different from the rest of the country, particularly in that the slight increase in syphilis cases has not yet been observed, and the rate of gonorrhea increase has been much greater in Maine.

The exact reasons for this increase in gonorrhea are not known. There is no evidence to suggest that there has been any essential change in the nature of the causative organism other than a significant increase in its resistance to penicillin treatment. Despite the relative resistance, however, the gonococcus is still susceptible to penicillin in doses which can be given easily; therefore, there is little reason to suspect that this resistance is related to the increased case rate. Data presented at the International Venereal Disease Symposium in St. Louis in 1971 does suggest that there is an increased amount of sexual activity among young people today compared to the information collected by Kinsey in his famous studies in the late 1940's. The proportion of college students who had had premarital intercourse has nearly doubled since that time.[1] The age when a young man first has sexual contact is, however, not related to his risk of having gonorrhea. But, young men with histories of school dropout, delinquency and entry into military service before

Table 1

Reported Case Rates per 100,000 for Gonorrhea and Primary, Secondary and Early Latent Syphilis (Combined) Maine, 1962-1971

	Gonorrhea	*Syphilis*
1962	20.5	1.6
1963	21.4	1.6
1964	25.6	2.3
1965	30.0	1.6
1966	41.3	1.4
1967	51.1	1.3
1968	90.1	2.6
1969	75.5	1.3
1970	96.4	2.6
1971	111.8	2.2

Table 2

Reported Case Rates per 100,000 for Gonorrhea and Primary, Secondary and Early Latent Syphilis (Combined) U.S.A. 1960-1969

	Gonorrhea	*Syphilis*
1960	139.6	16.6
1961	147.8	21.1
1962	142.8	21.9
1963	145.7	22.0
1964	154.5	21.7
1965	163.8	21.4
1966	173.6	20.4
1967	193.0	18.8
1968	219.2	18.1
1969	245.9	17.0

*Director, Bureau of Health, and Director, Venereal Disease Control Program, respectively.

age 17, have two to three times the risk factor for acquisition of gonorrhea.[2] Furthermore, information collected in Denmark suggested that young people infected with venereal disease had a greater history of promiscuity than did their non-infected counterparts.[3] The use of oral contraceptives may predispose to gonorrhea infection in the female although it must be emphasized that this information is only theoretical at this time. It would be clearly inappropriate to blame the increasing gonorrhea rate on the widespread use of oral contraceptives alone.

Another factor which probably plays a very significant role in the increased amount of gonorrhea seen today is the phenomenon of asymptomatic carriage of the organism. There has been an increasing amount of information collected recently which suggests that between 1% and 10% of certain female populations can be asymptomatic carriers of the disease and more recently it has been reported that occasionally males can also carry the disease without symptoms. This latter report is as yet unconfirmed.[4]

Another aspect of Maine's gonorrhea problem, which makes the increase in gonorrhea cases even more significant, are the age specific attack rates. Table 3 shows that the age group in Maine most likely to experience gonorrhea infection is between 15 and 29 years of age. The male/female ratio of reported cases is almost exactly 1:1. This data is particularly significant when one recalls that the age composition of the population in Maine is quite unusual. Ten and four-tenths percent of Maine's population is under five years old – the highest proportion of a New England State – and 11.3% of the State's population is over 65 – again the highest percentage in New England. Therefore, although this young adult age group represents a relatively smaller proportion of Maine's population, they constitute the group at greatest risk of contracting gonorrhea. The five-fold increase in Maine's gonorrhea case rate over the past 10 years thus becomes even more significant.

Gonorrhea in Maine has other unusual characteristics when compared to the rest of the country. In contrast to other localities, 90% of Maine's gonorrhea patients are white and are treated in private medical settings. A patient with gonorrhea in Maine is much less likely to get a second infection as is his counterpart in the rest of the country. The incidence of repeating infection in Maine is less than 0.5%.

Like the rest of the country, however, Maine's gonorrhea problem seems to be concentrated primarily in urban areas. Sixty-one percent of the gonorrhea case rate during the years 1970 through 1971 occurred in the three counties of Cumberland, Androscoggin and Penobscot which represents only 31% of the State's population. Furthermore, the urban areas of Portland, Lewiston-Auburn and Bangor, accounted for well over half of the cases occurring in the county.

The above information would suggest that, in terms of attack rates and increasing numbers of cases, gonorrhea is by far a more significant problem than syphilis is in Maine at the present time. However, these are two different diseases and the relative seriousness of the disease as it affects the individual patient must also be taken into account when their relative importance is assessed.

TABLE 3

AGE SPECIFIC GONORRHEA ATTACK RATES PER 100,000
MAINE 1970-71

Fiscal Year	*Age Group (Years)*					
	0-15	15-19	20-24	25-29	30-34	35+
1970	7	208	446	202	58	9
1971	20	239	513	187	75	64

There is no difference in gonorrhea and syphilis in terms of mortality. During the past five years, no person has died in Maine of either of these two diseases. Gonorrhea, or any complication of gonorrhea, has not been listed as a contributory cause of death. In approximately three to five deaths per year, the presence of old, usually treated, syphilis has been mentioned in the death certificate as an incidental finding. Therefore, in terms of mortality, neither of these illnesses can be regarded as a serious public health problem in Maine today.

The vast majority of people in Maine who have a positive blood test for syphilis are administratively classified as having "latent syphilis" by virtue of the fact that their VDRL or screening test and their FTA-ABS or other confirmatory test are both positive. To be sure, when both of these tests are positive, the likelihood that a patient has or has had a syphilitic infection is very high. The vast majority of people who fall into this category have a history of adequate treatment for the disease and have no symptoms. It is well known that blood tests do not always revert to negative after treatment has been given – particularly the FTA-ABS test. Furthermore, since this classification of people having "late latent syphilis, treated or untreated" is primarily an administrative one, it does not take the phenomenon of "biologic false positive" into consideration. It is quite likely that a significant number of people in Maine who have a positive blood test have it because of some disease other than syphilis.

It has been estimated that in white U.S. population anywhere between 0.03 and 0.5% of the population will have a biologic false positive test for syphilis. Furthermore, the reactivity rate of the FTA-ABS test in diseases other than syphilis has been reported as being as high as 16% to 18%. This is the most specific test we have for syphilis, but as this data suggests, it is far from perfect. These observations would seem to also support the contention that, at the present time, syphilis is a relatively minor public health problem in Maine – particularly when compared to gonorrhea.

The cardiovascular, neurologic, orthopedic and dermatologic complications of syphilis are well known. These are serious problems and their importance should in no way be minimized, but they are very infrequent causes of death or disability in Maine today.

However, it would be equally wrong to regard gonorrhea as a completely benign disease which has no serious sequelae. Before the days of antibiotic treatment, 3% to

5% of patients with gonorrhea developed gonococcal arthritis. The use of antibiotic treatment has drastically reduced this figure, but gonococcal arthritis is still the most common form of bacterial arthritis seen in young adults today. When untreated, this can cause severe joint deformity and limitation. Characteristic skin lesions are also commonly seen with this complication and are felt to be manifestations of the gonococcal bacteremia that occurs with the disease. These problems have also been associated with gonococcal pharyngitis, a much more elusive type of gonococcal infection. Of course, the most common complication of gonorrhea in the female is acute, sub-acute or chronic salpingitis, a condition which is notoriously difficult to treat and may require surgical intervention. Infection of the upper genital tract in the male is also common, presenting as prostatitis, seminal visiculitis and epididymitis. These upper genital complications of gonorrhea make it the most common cause of acquired infertility in our population today. Gonococcal proctitis is being much more commonly observed, particularly among homosexuals and can produce rectal strictures.

Gonococcal meningitis is a very rare but extremely serious complication of gonorrhea. It has been estimated that 2% of meningococcal meningitis is in fact due to N. Gonorrhoeae when the causative organism is very carefully identified. This finding is particularly significant when one remembers that, as was mentioned earlier, the penicillin resistance of the gonococcus has increased quite remarkably. The gonococcus has also been shown to cause endocarditis, osteomylitis, pneumonia and infections of other organs. Gonococcal conjunctivitis is a very serious complication of gonorrhea, both in the adult and in the newborn and, if not rapidly treated, can cause blindness with remarkable frequency. These complications of gonorrhea, although infrequent, are by their very nature quite fulminant and, because of the difficulties encountered in culturing the gonococcus, their exact diagnosis is often very elusive.[5]

Relative economic impact of these two illnesses is also of great interest. Even if one were to disagree with our contention that syphilis is a relatively well reported disease in Maine and assumes that syphilis reporting is no better than gonorrhea reporting and using relatively standard cost figures, we can estimate that the costs of detection and treatment of gonorrhea alone exceed $100,000 per year in Maine as opposed to $2,500 for detection and treatment of the cases of syphilis. These cost figures do not include time loss from work and other indices of the economic impact of the disease.

We take these data and these conclusions to mean that gonorrhea is at least as important a public health problem in Maine today as syphilis is; in fact, probably more significant. To be sure, if Maine follows the rest of the country and experiences an increase in syphilis cases, this thesis may no longer be tenable. However, should reported cases of syphilis increase to five times their present level (as gonorrhea has over the past ten years) Maine has the resources to detect these cases and to bring them to rapid treatment so that, even if this should occur, syphilis would not propose a major public health problem for the State.

Once these facts were known, it became obvious that the Bureau of Health needed to re-structure the Venereal Disease Control Program in such a way as to place greater emphasis on gonorrhea and thereby, hopefully, bring about some decrease in the rate of increase of this disease. The recently renewed availability of Federal funds to assist in these efforts was obviously a very important part of this decision. Gonorrhea has, therefore, been assigned a higher priority than it has received in the past and new program activities will reflect this priority assignment.

With the help of a $63,000 Federal grant, the following kinds of activities will be initiated or intensified. Additional field staff has been employed to conduct epidemiologic activities designed to bring asymptomatic contacts of gonorrhea cases to earlier and more effective treatment. These activities will be primarily conducted in the major urban reservoirs of the disease. A program of private physician visitation will be conducted, primarily in these urban areas, to encourage physician reporting and to update physicians as to modern methods of treatment of all venereal diseases. A marked increase in effort to detect asymptomatic female carriers will be conducted primarily through existing medical care services such as Family Planning Centers, established clinics and the like.

It is planned that, during the first year, approximately 30,000 women or 15% of the female population in the State at high risk will be screened. A group of selected physicians will be recruited to serve as referral physicians for city and local health departments to increase the ease with which patients infected with gonorrhea can get treatment.

It is important to point out that the initiation of new specialized venereal disease clinics will *not* be encouraged under these activities because of the fact that these clinics, once initiated, contribute to the fragmentation of medical care that exists in Maine. We feel that the treatment of acute illness belongs in comprehensive settings in the private sector of health care.

A variety of educational activities will be conducted designed to reach all the various elements of society who are concerned with this particular problem. Opportunities will be made available for continuing physician education in modern methods of venereal disease diagnosis and treatment. Greater efforts will be made to educate young people in the importance of and the symptoms of venereal disease and to encourage them to seek rapid treatment when questionable symptoms occur.

Because the gonococcus is so difficult to culture, the State Public Health Laboratory will be reviewing the gonorrhea culture capabilities of the various diagnostic laboratories throughout the State, and appropriate technical assistance will be provided as necessary. A new State law giving this Department the power to require reporting of all positive laboratory tests for venereal

disease will be implemented. The capacity of the State Public Health Laboratory to perform diagnostic tests for gonorrhea will be increased and its present capabilities for performing diagnostic and screening tests for syphilis will be maintained.

These new or expanded activities will be financed through the already available State funds, the above-mentioned new Federal funds and through the utilization of resources made available by more efficient operation of our Venereal Disease Control activities. The major mechanism through which these internal savings will be effected will be through the reassignment of priorities in the operation of the Bureau of Health so that the conduct of activities reflects more accurately the relative seriousness of the problems with which they deal. One of the changes that will be made will undoubtedly arouse a great deal of interest and discussion in many areas. To further examine the rationale behind this particular change it is necessary to look at the means by which cases of syphilis are presently being identified. This information is summarized in Table 4. It shows that during the past six years only one case of early syphilis was detected through premarital blood test screening. It is likely that this case would have been detected through one of our other surveillance techniques.

It is also of interest to analyze the cost figures associated with the premarital blood test. Each year the State Public Health Laboratory processes approximately 15,000 premarital serologies. Additionally, twenty-one other private laboratories throughout the State are State approved to perform premarital blood tests, and yearly these laboratories perform approximately 5,400 such tests. The laboratory costs of these tests will vary depending on the method used to calculate such costs, but assuming that the tests are performed as economically as possible the laboratory costs alone for this particular program are approximately $20,000 per year. These tests must be drawn by a physician and a recent survey of Maine physicians showed that the average cost to the patient for a physician simply drawing a blood test and signing the application for the marriage license was $6.07. Approximately 90% of Maine's physicians perform no other service for the patient when taking the blood test. The other 10% of Maine's physicians provide the patient with additional diagnostic, preventive and counselling services appropriate to their premarital status. The physicians who provide this more complete service have a higher average charge which was, in the same survey, calculated to be $17.69. The costs of this more complete premarital diagnostic counselling service are not included in the following calculations. The total physician costs to Maine residents for this screening activity is approximately $95,000 per year. Thus, the total yearly cost of premarital screening is fairly close to $115,000 a year for the medical and laboratory aspects alone. Over the immediately preceding six years, therefore, a total of $690,000 was spent by Maine residents in the form of direct costs for this screening program. The yield was one case of infectious syphilis which, as is mentioned above, would probably

Table 4

Techniques Used to Detect Early Syphilis Infections in Maine 1965-1971

Technique	*Explanation*	*Proportion of Early Syphilis Cases Detected (81 cases total)*
1. Epidemiology	Patient interview, contact tracing and cluster testing	22%
2. Physician & Patient Reporting	Reporting both direct and via local health authorities	25%
3. Routine Serology Testing – not mandatory	Testing of hospital admissions, blood donors, military inductees, prospective employees	44%
4. Miscellaneous	Primarily laboratory reporting of results of non-routine screening lab work	8%
5. Mandatory Pre-marital Blood Test Screening	The blood test required for issuance of a marriage license (not prenatal screening)	1% (one case)

be detected through one of our other surveillance systems. This figure, admittedly based on a small number of cases, still seems exorbitant – $690,000 to identify a single case of infectious syphilis is too much.

It is also important to recognize the imposition of the premarital blood test requirement constitutes a rather significant inconvenience to many people. It is quite common for this Bureau to receive inquiries from prospective newlyweds about how the blood test can be circumvented because their marriage plans have been firmly established and they simply forgot to have their blood test done. A judge in Maine may waive the blood test requirement for issuance of a marriage license and informal information suggests that this is not infrequently done. Therefore, it would be very easy for a person who knows they have a positive blood test to avoid the premarital blood test requirement. However, this person is one about whom we are not particularly concerned because it is fairly likely that he has been already treated for syphilis. This inconvenience factor, although not something which alone would justify changing a health program, is a very significant one. The amount of anxiety generated in a prospective bride's mother when the bridegroom flies in from out of State on the day before the wedding and suddenly remembers he has forgotten to have a blood test is often quite impressive.

It is for these reasons that, effective October 1, 1972, and pursuant to the authority granted in Section III, Revised Statutes, Title 22, Paragraph 1181 Amended, as passed by the 105th Legislature, this Department will no longer require that blood tests for syphilis be obtained prior to issuance of a marriage license in Maine. It should be emphasized that at any time in the future that it be-

TABLE 5

RECOMMENDED GONORRHEA TREATMENT SCHEDULES

Type of Disease	*Drug*	*Dose*	*Duration*	*Route*
Uncomplicated	Aqueous Procaine Penicillin G	Male: 2.4 million units Female: 4.8 million units	Stat.	IM
Uncomplicated	Oxytetracycline	250 mg.	Stat.	IM
	and	1 gm.	Stat.	Oral
Uncomplicated	Doxycycline	100 mg.	B.I.D. 3 days	Oral
Uncomplicated	Kanamycin	2 gm.	Stat.	IM
Uncomplicated	Erythromycin	2.5 gm.	Stat.	Oral
	and	2.5 gm. (divided)	2 days	Oral
Pelvic Inflammatory Disease	Aqueous Procaine Penicillin G	4.8 million units/day	7 days	IM
Pelvic Inflammatory Disease	Oxytetracycline	0.5 gm. Q.I.D.	7-14 days	Oral
Pelvic Inflammatory Disease	Erythromycin	0.5 gm. Q.I.D.	7-14 days	Oral
Pelvic Inflammatory Disease	Kanamycin	0.5 gm. T.I.D.	7 days	IM

comes advisable to reinstitute this requirement, this Department has the authority to do so and will do so without hesitation. However, at the present time, the Bureau of Health does not feel it is justifiable to impose these kinds of costs on an already financially overburdened citizenry for such a poor yield. The resources saved through this kind of change can be more efficiently applied to increasing our capability to deal with the gonorrhea problem which has been assigned a higher priority.

Of those cases of epidemiologically significant syphilis that have been identified thus far during calendar 1972, no case was identified through the premarital blood test and no cases would have been detected through this technique if they had not been detected another way. The abolition of the premarital blood test will not adversely affect our ability to detect and deal with syphilis as a public health problem in Maine.

There are five states in the United States which do not require a premarital blood test before marriage. These are Maryland, Louisiana, South Carolina, Minnesota, and Washington. There is no evidence to suggest that these states have any different experience with syphilis.

During Fiscal 1970, 3,395,000 premarital blood tests were performed in the United States. A total of 2,727 cases of syphilis (syphilis in *all three* stages) were identified and an additional 183 cases of syphilis were found among the contacts of these people. On a national basis, therefore, the premarital blood test is still a relatively valuable tool. In Maine, however, it is not.

Discontinuing the premarital blood test requirement will not change the waiting period imposed before a marriage license can be issued.

We expect that a certain amount of controversy will be created by this decision. Maine will be the first State in the United States to abandon the premarital blood test. Again, it should be emphasized that this requirement can be reinstituted at any time. The savings generated within the laboratory will be used for more effective and expert gonorrhea control activities. It should be emphasized, therefore, that this change in no way represents a decrease in emphasis on venereal disease by the Bureau of Health. Rather it represents our perception of the fact that venereal disease is an increasingly severe problem in Maine today and that we have to take fairly significant steps to re-order our internal operations in such a way as to deal with it.

Table 5 represents the currently recommended treatment regimens for patients with gonorrhea in Maine. We ask all Maine physicians to treat gonorrhea patients according to this schedule to rapidly render them non-infectious and to also report the case to this Department so that epidemiologic follow-up can be effected.

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Maine Heart Association Notes

20 Winter Street, Augusta, Maine

Treatment of Cardiogenic Shock — Part I

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Although the treatment of cardiac arrhythmias following a myocardial infarction has decreased in-hospital mortality, cardiogenic shock remains a major cause of death. The mortality rate of cardiogenic shock is still in the range of 75 to 80 percent. It is estimated that over 100,000 individuals die yearly in the United States with this syndrome. The clinical profile of the patient with cardiogenic shock is familiar. At some point after sustaining a heart attack the blood pressure starts to fall and is usually no greater than 80 mm. Hg. systolic. A tachycardia of 120-140 beats per minute is quite usual. The skin color is a dusky cyanotic gray and the patient is markedly diaphoretic. Urine output falls and the patient's sensorium becomes clouded. He will often be barely arousable or may be quite irrational. Terminally, ventricular tachyarrhythmias or heart block may occur.

If any one form of therapy had proved to be successful, there would be little controversy concerning the proper medical therapy for this condition. Since the mortality is so high, there have been many forms of therapy advocated. Since there is no uniform agreement concerning therapy, the following approach is one which the author accepts as a generally reasonable one. It is axiomatic that therapy must be individualized for each patient and that no patient should receive a predetermined regimen.

The principles of therapy for cardiogenic shock follow from the pathophysiology of this condition. There is increasing evidence that the major factor leading to cardiogenic shock is an inability of the left ventricle to perform adequately as an effective pump. In almost all cases cardiac output is markedly diminished. Similarly, the hypotension which is a hallmark of this syndrome is in large part a consequence of low cardiac output. Since a critical pressure is necessary to maintain coronary filling, the hypotension has deleterious effects upon coronary filling and this in turn leads to further deterioration in the ability of the heart to support the circulation.

The two goals of therapy for this condition are:

1. To increase the cardiac output and
2. To raise systemic blood pressure

Both of these goals could be achieved if the left ventricle were helped sufficiently to augment its contractility.

General Considerations

Since cardiogenic shock has such a dreadful prognosis, any patient with this syndrome should be treated in a specialized facility capable of handling the intricate problems that arise. Adequate bedside and central nursing station electrocardiographic monitoring should be available. An intravenous line capable of measuring central venous pressure should be present and fluids and medication may be administered through it. Although it is desirable under certain circumstances to be able to directly record arterial pressure through the use of a strain gauge and pressure transducer, this latter intervention is not absolutely essential.

The measurement of central venous pressure may be important in unmasking hypovolemia as a contributory factor to the shock. With the widespread use of diuretics in cardiac patients, it is not unusual for the patient who sustains a myocardial infarction to have the problems of hypovolemia added to those of pump failure. Although it is well recognized that the central venous pressure may be totally normal, even if the patient is in pulmonary edema, knowledge of the central venous pressure does help management. If the central venous pressure is low or normal and if the patient is not in gross left sided congestive heart failure with rales, dyspnea and roentgenographic evidence of pulmonary edema, judicious fluid therapy may be extremely valuable in reversing the state of circulatory failure. By taking advantage of the fact that as left ventricular end diastolic pressure and volume increase, so will left ventricular work and stroke output, a trial of 250 ml. of isotonic saline or low molecular weight dextran may be tried. If this improves the circulatory state then another 250 ml. may be given. At times, a simple therapeutic maneuver such as fluid administration may be of great help in relieving many of the manifestations of this syndrome.

If central venous pressure is elevated *in the absence of cor pulmonale,* there is generally little chance that fluid administration will be helpful and the danger of causing pulmonary edema increases.

Other general principles such as oxygen administration and adequate pain relief will not be commented upon in this review other than to mention

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them. Pain, such as that which may occur with a myocardial infarction, may often lead to vagal reflexes which potentiate hypotension. Sufficient analgesia should be given to alleviate pain completely.

Digitalis Glycosides

There is considerable controversy concerning the role of digitalis glycosides in the syndrome of cardiogenic shock. The argument usually cited by physicians who are reluctant to utilize digitalis is the recognized potential of digitalis to cause ventricular arrhythmias. More recently, it has been shown that any intervention which increases the velocity of myocardial contraction also increases myocardial oxygen consumption. One of the actions of digitalis is to raise the velocity of contraction and therefore it may raise myocardial oxygen consumption. It has been demonstrated that areas of myocardium which are marginally oxygenated following an occlusion of a coronary artery may become necrotic instead of ischemic if myocardial oxygen consumption is augmented. However, if one accepts the thesis that the primary abnormality in cardiogenic shock is a marked depression of left ventricular contractility, then digitalis therapy becomes a very rational means of trying to restore circulatory integrity. Unfortunately, a controlled study of digitalis therapy in cardiogenic shock is still not available.

It is the author's practice to administer digitalis early in the course of cardiogenic shock if the patient is not already taking this medication. The onset of action and peak effect of intravenous digoxin are such as to make it a perfectly reasonable drug to use. Between 1.0 and 1.5 mg. digoxin is given intravenously in approximately a 2-hour period in doses of 0.25 mg. every fifteen or twenty minutes.

It should be noted that pulmonary venous congestion or other signs of left heart failure need not be present in a patient with cardiogenic shock. The author feels, nonetheless, that digitalis plays a role in the therapy of the patient in cardiogenic shock. It should be recognized however that this form of therapy is not agreed upon uniformly.

Vasopressors

The most easily recognizable feature of cardiogenic shock is hypotension. A variety of agents are available to raise arterial blood pressure. The sympathomimetic amines have received considerable use. These drugs have been classified into alpha or beta stimulatory agents. Alpha adrenergic drugs act primarily on the peripheral arterioles and raise blood pressure by increasing peripheral resistance. Included in this group are methoxamine (Vasoxyl®) and phenylephrine (Neo-Synephrine®). A second category of drug not only stimulates alpha adrenergic receptors in the peripheral arterioles but also stimulates beta adrenergic receptors in the myocardium. Metaraminol (Aramine), nor-epinephrine (Levophed®) and epinephrine are examples of this type of agent. An example of a sympathomimetic amine which has only beta stimulating effects is isoproterenol (Isuprel®). Since isoproterenol acts as a peripheral vasodilator it does not appropriately fall into the category of a vasopressor, although it is a sympathomimetic amine.

Although raising the blood pressure is generally considered an appropriate goal in the treatment of a patient in cardiogenic shock, the issue is not quite that simple. Since most filling of the coronary arteries occurs in diastole, the coronary arteries do require a certain level of pressure in the central aorta in order to fill. Myocardial function is dependent upon adequate coronary blood flow and will deteriorate in the presence of inadequate perfusion pressure.

It has been shown, however, that drugs which act only on the peripheral arterioles, thereby raising blood pressure by elevating peripheral vascular resistance, may have a deleterious effect upon patients in cardiogenic shock. If left ventricular function is sufficiently impaired to place a patient into cardiogenic shock, increasing the resistance against which the left ventricle must pump may further decrease cardiac output.

For this reason, drugs which act solely on the peripheral vasculature such as methoxamine or phenylephrine have little or no role in the therapy of cardiogenic shock.

Agents which act both on the beta receptors of the myocardium and the alpha receptors of the periphery have been used most extensively. It is wise to use as little of these agents as are necessary to maintain an adequate perfusion pressure and it is also advisable to give these agents by intravenous drip rather than intramuscularly. By so doing, blood pressure can be titrated more precisely. It is not necessary for the blood pressure to be brought to normal levels. A systolic blood pressure of 90-100 mm.Hg. is usually adequate. It is the author's practice to place 50 mg. of metaraminol in 500 ml. of 5 percent dextrose in water. This is infused at a rate sufficient to elevate blood pressure the desired amount.

Nor-epinephrine (Levophed) is another sympathomimetic amine which has potent effects upon both the periphery and the central circulation. Although blood pressure can generally be raised by an intravenous drip or nor-epinephrine, experience indicates that relatively few patients survive if it becomes necessary to use this drug in order to sustain blood pressure.

Glucagon

Glucagon, a hormone which has been shown to raise blood sugar has also been utilized recently in patients with cardiogenic shock. Although its mechanism of action is not known precisely, it does have the property of increasing cardiac contractility, possibly by augmenting the synthesis of cyclic AMP. Initial studies of this agent in the animal laboratory and in the human cardiac catheterization laboratory led to some enthusiasm for its use in patients with myocardial infarction and shock. Other than for some anecdotal reports of its efficacy this agent has generally been disappointing in the treatment of this condition and has generally been abandoned as a useful therapeutic agent.

(Part II will appear in the October 1972 issue)

COORDINATION OF BENEFITS

Coordination of Benefits, a cost-saving device designed to reduce overpayments of health coverage, has been a provision in a number of Blue Cross and Blue Shield group contracts for over a year and is now being added to the remainder of the Blue Cross and Blue Shield group contracts.

There are no administrative changes as far as the physician's filing of the Blue Shield claims form is concerned. Benefits will be coordinated, when applicable, by the Blue Shield Department in Portland.

"Coordination of Benefits" means that Blue Cross and Blue Shield agree to share with commercial insurance companies all covered health care expenses when a subscriber is enrolled under more than one 'group' health care program.

If a Maine Blue Cross and Blue Shield subscriber or his dependent is covered by more than one group health contract, the total amount he can recover, in the event of a claim, from the contracts is limited to the combined coverage of the contracts up to the actual expenses incurred. The subscriber is protected to the extent of the combined contracts from the financial hazard of medical expenses.

The following examples illustrate how Coordination of Benefits works in various situations:

> Both the husband and wife of the Smith family are employed. The husband works for the ABC company which provides family coverage through Blue Cross and Blue Shield; the wife is employed by the XYZ company and has family coverage through a commercial insurance company.
>
> If the husband is the patient, Blue Cross and Blue Shield would pay first as primary insurer and the commercial insurance company would be secondary, paying any balances for covered health care services.
>
> If the wife is the patient, the commercial company would pay first as the primary insurer and Blue Cross and Blue Shield would pick up any balances for covered services.
>
> If one of the Smith children is the patient, the child would be covered under the father's Blue Cross and Blue Shield contract first and secondarily under the commercial insurance policy.
>
> If the husband (or wife) is covered under more than one policy through employment, such as when the husband 'moonlights' and also has a day job, the policy in effect the longest would provide the primary coverage.

Another provision of Coordination of Benefits states that if one of the group coverage plans does not contain Coordination of Benefits, the benefits of that plan will be determined first. In other words, the plan without Coordination of Benefits will always be primary insurer.

Summary

'Coordination of Benefits' means that payments made for health care claims will never exceed the cost of care. In other words, a patient will not 'profit' from illness simply because he is covered under more than one 'group' health contract.

By the same token, it means that everyone will receive full health care benefits during a time of illness, benefits equivalent to the best coverage under a combination of both contracts.



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News, Notes and Announcements

Project S I C

Practicing physicians are continually trying to improve the delivery of medical care. Many of these efforts occur in the relatively isolated setting of the individual practitioners or small medical practice groups. Unfortunately most of the efforts go unnoticed and the exciting innovations that result are unknown either to the medical society or to the public.

Project S I C is a project that will give visibility to the progress in medical care delivery that is being generated by practicing physicians without fanfare or public funding. The resources of Project S I C: Survey of Innovative Change were made available through the Medical Care and Education Foundation in Boston, Mass. With the assistance of Harold W. Keairnes, M.D., the Associate Director for Evaluation and his associate, Annette Born, Project S I C is conducting this survey in the New England states to identify those physicians who have innovated in:

1. Methods of using new types of health personnel
2. Organization of a medical practice
3. Financial operation
4. Use of modern technology.

As part of the survey, some innovators will be interviewed directly by members of the project staff.

Enclosed with this newsletter is a Project S I C checklist (may be obtained from the Maine Medical Association, P.O. Box 250, Brunswick, Maine 04011). Each physician who feels that he has developed an innovation in his practice should complete the checklist and return it to Dr. Keairnes. If there are any questions or if anyone would like to discuss this project further please write or call Dr. Keairnes or Ms. Born at the Medical Care and Education Foundation, I Boston Place, Boston, Massachusetts 02108, Tel. (617) 742-7280.

The Association of Operating Room Nurses of Western New York

The Association of Operating Room Nurses of Western New York is planning a two-day Regional Institute, under the auspices of the Association of Operating Room Nurses, National Committee on Education. This Institute will be held at the Statler Hilton Hotel in Buffalo on:

Friday – October 13, 1972
and
Saturday – October 14, 1972

The Institute will provide the operating room nurse an opportunity to participate in an educational program at the local level. Participation will promote increased theoretical knowledge, self-awareness, and meaningful application of such understanding within the clinical situation.

Continuing Education Units will be given to nurses who attend this Regional Institute.

For registration and further information contact: Sandra O'Toole, R.N., AORN Registration Chairman, Buffalo General Hospital, 100 High Street, Buffalo, New York 14203.

International Academy of Proctology

The 25th Annual Congress and Teaching Seminar of the International Academy of Proctology will be held in the Orient – April 29 to May 14, 1973 – in Tokyo, Japan; Hong Kong, and Bangkok, Thailand. Waldo W. Stiles, M.D. of Quito, Ecuador will serve as General Chairman, and Chalia Vajrabukka, M.D. and Vikit Viranuvatti, M.D. will direct the Bangkok sessions.

Scientific Sessions are planned in each of the countries, under the direction of the Program Chairman, Alvin D. Yasuna, M.D., New York City, N.Y.

Please consider this a cordial invitation to your readers to attend this important Congress, and if they so desire – to present a paper at the Congress meetings in Tokyo, Hong Kong and Bangkok.

Prominent surgeons from many parts of the world are scheduled to present unusual and interesting papers and all physicians are invited to attend.

Program Information Forms for speakers and additional information may be obtained by writing directly to the Executive Offices, 147-41 Sanford Avenue, Flushing, N.Y. 11355, attention Alfred J. Cantor, M.D., Executive Officer.

Dr. Adams of Orono Retires After 43 Years of Service

Dr. Asa C. Adams, prominent Orono physician and surgeon, first opened his office at 68 Main Street in Orono on August 1, 1929, and is retiring after 43 years of devoted service to Orono and the greater Bangor area.

Dr. Adams, who has endeared himself to thousands of patients, was born in Linneus in Aroostook County, the son of a potato farmer. His parents were George H. and Phoebe H. Adams. His mother died when he was four years of age.

He was graduated from Ricker Classical Institute, Colby College, and received his medical degree from the University of Vermont Medical School in 1928.



DR. ADAMS

In June of 1968, Dr. Adams was elected President of the Maine Medical Association. He had previously served as Councilor for the Sixth District from 1964 to 1967, the last year as Council Chairman and as President-elect from 1967 to 1968. He is a member of the American Medical Association and the Penobscot County Medical Association of which he is a past president. Dr. Adams served as Alternate Delegate to the American Medical Association from January 1960 to January 1961, and as Delegate from January 1961 to January 1965. He is also a Fellow of the American College of Surgeons, a member of the Surgical Staff of the Eastern Maine Medical Center and the St. Joseph Hospital in Bangor and a past president of the Eastern Maine Medical Center Staff.

Dr. Adams' interest in education is evidenced by the fact that he was a member of the Orono School Board for over twenty years during which time he was Chairman of the Building Committee when an extensive school building program was carried on. He was honored by the town in having the Asa C. Adams Elementary School named for him. He was also Chairman of the Orono School District.

Dr. Adams is a former member of the Board of Trustees of Colby College and was awarded an honorary degree by the college, and he is a President of the Board of Trustees of Ricker College.

Dr. Adams is married to the former Vina Beatrice Parent of Haynesville, Maine and they have two sons, Marvin C. Adams, M.D., specialist in Otolaryngology on the Staff at Maine Medical Center and Mercy Hospital in Portland and David L. Adams, M.D., a Cardiologist on the Staff at the Maine Medical Center in Portland, and eight grandchildren and one great grandchild.

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The Journal
of the
Maine Medical Association

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The Mental Health Issue

William E. Schumacher, M.D.*

Complaints have been many but they are becoming less numerous now.

In January, the policy for admission to the State hospitals was circulated. It was not a new policy but there was a strong intent to adhere to it rather than to depart from it in response to pressure or appeals for sympathy and compassion.

What the policy was all about was simply an attempt to make the two State hospitals of Maine psychiatric hospitals rather than composite nursing homes – jails – drunk tanks – general acute hospitals – psychiatric hospitals – and retreats.

For many years, Augusta and Bangor State Hospitals have dissipated their resources in carrying out a variety of tasks which could be done as well or better by others. For example, Augusta State Hospital had an operating room and attempted to do a creditable job in providing surgical services. But there was no recovery room, no blood bank, no available laboratory services around the clock . . . and this effort was going on while the Augusta General Hospital was within one quarter of a mile away and had empty beds.

Over 20% of admissions and 40% of resident patients in both hospitals were the elderly suffering the problems of organic brain syndrome with confusion, memory deficiency, incontinence. These individuals needed supervision and/or nursing care and not psychiatric care. Their needs could be adequately met in nursing homes. However, they were well cared for at Bangor and Augusta but at the expense of the psychiatrically ill who were neglected because of the high service needs of the aged.

Communities troubled by the threatening or unacceptable behavior of certain individuals arranged to have them admitted involuntarily knowing that their acts were not serious enough breeches of the law to insure a long prison sentence. In the hospitals, these individuals disrupted treatment programs and were not capable of being changed by any applicable psychiatric treatment since their problem was a behavior disorder and not mental illness.

None of these problem groups needs psychiatric treatment in a mental hospital. They have filled the beds to overflowing and have absorbed the efforts of treatment and support personnel. In a system of fixed resources . . . (just so many employees and so many dollars are provided by the legislature) . . . one cannot afford to do secondary jobs until the primary task has been accomplished, and the primary task of the two State hospitals is the care and treatment of the mentally ill, who require hospital care.

The effort to limit services to appropriate patients has had its problems. General hospitals have been reluctant to accept acute alcoholics or those with acute drug reactions needing detoxification. Physicians have had to use local resources to locate a nursing home bed for an elderly patient no longer able to live alone or is unacceptable as a family member living with his kin. Hospital social workers have found nursing home beds filled with patients transferred from the State mental hospitals. Emergency rooms have had to cope with a drug using youngster who have had to rely on long-haired assistance from the local "rap" center. There have been strains but they are growing less severe.

Simultaneously the Augusta State Hospital has substantially improved its inpatient treatment program. There are no longer any back wards filled with chronic patients. Every patient is studied, treated and is being prepared to leave the hospital. This has been made possible by some increase of professional staff and by a reorganization of the diagnostic and treatment program into units, each related to a specific geographic area of the State. Development of a similar program at Bangor State Hospital has been delayed by recruiting difficulties but will occur when professional personnel shortages have been overcome. However, a major factor has been the ability of Augusta State Hospital to reduce its inpatient

*Director, Bureau of Mental Health, Augusta, Maine 04330.

census from 1,550 patients in June 1971 to 950 patients in June of 1972. This reduction has effected a better ratio of staff to patients, and as the intensity of treatment efforts continues to expand, a further reduction can be anticipated leading to even greater therapeutic program gains.

The changes in the policy of the operation and admission to the State hospitals is consistent with the concept of an integrated mental health care delivery system. In 1959, the Maine Legislature created the Bureau of Mental Health within the Department of Mental Health and Corrections, and passed legislation providing for financial assistance to community mental health services. These actions began the integration of community and institutional mental health programs and promoted the development of the former. Mental health planning in 1963 and 1964 resulted in the development of a plan for regionalized services with the State hospitals as supportive and special institutions backing up community services. The Federal Community Mental Health Center financial assistance program for construction and staffing of community-based comprehensive services for the mentally ill and the mentally disturbed augmented by an education and consultative component of service provided for the movement of the primary responsibility for mental health care out of the mental hospital and into the community.

In Maine in the past 11 years, there has been a substantial growth of community mental health resources from small outpatient clinic efforts to the present development of four functioning mental health centers, and four other centers in the process of obtaining funding from federal sources or of planning full center programs. These centers located in each of the eight mental health center service areas by Federal requirement must provide or arrange for the provision of outpatient and inpatient care, emergency 24-hour daily coverage, education and consultation, and partial hospitalization services usually consisting of day-hospital care. And all of these services must be coordinated to assure continuity of care.

Maine centers are all private non-profit agencies receiving financial support from local, State and federal sources, and charging fees based on patients' individual abilities to pay. That these centers are non-governmental is by design since planning suggested that the constraints and the limitations of innovation found in governmental operation would preclude the flexibility and risk-taking necessary in a new and developing program. Control is local but influenced by governmental agencies which provide funds. The local boards, however, set policy and oversee operation within broad parameters set by governmental funding agencies.

The accelerated growth of these community mental health centers which resulted from Federal funding has not been without problem. There are manpower problems such as the scarcity of trained psychiatrists, lack of responsiveness to community need, professional jealousies, struggles for power, lack of quality control and evaluation, inadequacy of financial support, false starts and retrenchment, and many others. The direction, however, has been forward, and in much of the State a mentally troubled person can gain access to mental health service within an hour's distance of his home, and this access can open the path to the professional service appropriate to his need. For instance, one can see positive gains in the availability of inpatient psychiatric care in Portland, Lewiston, and Fort Fairfield. There is continuing available outpatient and follow-up service for the mentally disabled who do not require hospital care but cannot function independently self-reliant in the community.

A goal in the service delivery system development has been to move the site of primary contact and care for mental health problems out of the institutions and into the community. This is consistent with the pattern of general medical care in which it has been found that only 15% of medical services were performed in a hospital. Obviously, the primary mental health care givers must be where the problems occur, the need is felt, and the demand for service expressed. Community service, however, must be backed with good quality resources including, for example, in-hospital services in adequate measure to meet needs. However, as in health care generally, the more costly in-hospital psychiatric care bed should be reserved for the patient who needs it, and the less costly and less disruptive community service should be the choice for the provision of mental health care.

Studies in New York City and in rural Nova Scotia have revealed that mental health problems of significantly disabling level are present in about 15% of the general population. Leighton's study volume's title "My Name is Legion" highlights this problem. With this extent of problem, the exclusive reliance on the psychiatrically trained physician as the exclusive provider of patient care cannot be maintained. Even the skills of psychologists, social workers and psychiatric nurses form too limited a manpower resource to meet even a significant part of the problem. As sophistication about mental health needs increases in the public, and reluctance to seek help for mental health problems abates, an increasing use must be made of the non-professionally educated mental health worker who needs training and supervision to function in triage and in the provision of direct patient service. These para-professional workers, often indigenous, furnish an excellent service function in accessibility, understanding, interpretation and in direct service.

Finally, a word about prevention. Our institutions are deeply involved in tertiary prevention as they attempt to rehabilitate the chronically mentally disabled to equip them for less institutionalized living, and improved community and social adjustment. For years mental health workers have promoted early case finding and diagnosis, intensive treatment with the newly mentally ill, and the prompt restoration of the patient to his usual environment and pursuits. This secondary prevention has been espoused by all as an appropriate means of shortening a spell of illness and preventing chronicity. However, primary prevention efforts have lagged . . . often as the re-

Continued on Page 220

"Moral Treatment": 1840-1972

Ulrich B. Jacobsohn, M.D., F.A.P.A.* and Millard Howard, M.A.**

When Maine became a State, almost all of the insane were either confined in outhouses, attics, cages, or dungeons, or were auctioned to be boarded at the lowest rate, or allowed to wander about the countryside. In about 1830, a humanitarian movement was allied to a belief in a "medical model" with an optimistic prognosis, and the conditions were established for an effective political movement to promote the "care and treatment" of this class of sufferers. In a few years, nearly every State in the Union established hospitals for the insane.

The liberal optimism of the Enlightenment was still very much present in Maine in the 1830's. The physicians were prominent exponents of this faith and were opinion leaders with great influence in their communities. They were convinced that "moral treatment" in a controlled hospital environment would be effective in curing mental illness.

The theory of moral treatment assumed that psychogenic factors, acting upon the brain surface, created physical changes in the brain, which, if not allowed to continue over too long a period, could be reversed through environmental manipulation. Intellectual stimulation and positive social and vocational learning experiences would occur in a small group situation. This would be a "moral" environment, emphasizing the traditional values of religion, a work ethic, and family discipline and solidarity – a model social order. The individual's importance and dignity would be carefully safeguarded. Thus insanity, especially if recent, was a readily curable physical disease when treated in a therapeutic environment.

In Maine, it took four years of concentrated political effort after Governor Hunton's call for an insane hospital in 1830 to achieve legislative approval. Organized petitions from "numerous respectable citizens" made the legislative committees thoroughly aware of all the arguments for an institution. The newly constructed hospital at Worcester, Massachusetts, was a readily available model. The conjunction of humanitarian concern and therapeutic optimism was enough to convince the committee.

Of particular assistance was a survey conducted by Dr. Tobias Purington of Danville, who estimated that there were 562 insane or one person in 800, a figure similar to estimates then current for rural England. This is probably not greatly different from the incidence today.

But these numbers did not tell the whole story. The committees were convinced that the incidence of insanity was rising. It was a widely held view of the 1830's and 1840's that the increase in civilization, with its heightened pressures and faster pace of life, would cause an increase in mental breakdowns. The openness of the social order which allowed wide varieties of religious enthusiasms and, especially, the breakdown in family discipline and authority, were perceived as ominous signs for the mental health of the younger generation. Breakdowns resulting from these defects in authority could only be cured in an asylum.

In 1834, the Legislature provided for a hospital for "one hundred lunatic persons furiously mad." It appears that it was never the intent of the Legislature to provide for all the insane in the State at the hospital. They wished to cure the curable, that is, the recent cases, and to provide humanitarian relief. Yet, they established a precedent of providing support which was grossly inadequate to achieve their own goals. All subsequent hospital administrations were faced with the dilemma of to what extent they should sacrifice treatment effectiveness in order to provide custodial care.

The theory of moral treatment had included a corollary that the patient must be isolated during his convalescence from the family and community influences which had caused the insanity. As long as it was assumed that most patients would be cured in a few months, the long range implications of isolating asylums from society and making them self-sufficient communities were not apparent. But "incurable" cases accumulated in the hospitals and by their very numbers overwhelmed the physicians committed to moral treatment. With an increase in the census, economics of scale made possible the reduction of the board rate which, in turn, tended to increase the census. The pressure of numbers forced the hospitals to exceed the maximum of 250 patients – the ideal of the mid-century. The institution as a well ordered family, with the superintendent a benevolent authoritarian father who visited each patient daily, was no longer possible. In 1854, Dr. Harlow did recommend that a second hospital be established in the eastern part of the State rather than allow the one in Augusta to go over 250. At that time only 1/9th of the reported insane in the State were in the institution. By 1881, Harlow had completely abandoned the ideal of a small hospital and, in that year's annual report, the Trustees explicitly asserted that the largest institutions in the country were the best ones.

During the same period, better statistics were demonstrating everywhere that early claims of curability were greatly exaggerated. No new approaches were discovered. If curability was an illusion, perhaps custodial care was the appropriate goal of the insane hospital. Interest began to focus on classification, which tended to be an end in itself.

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**Administrative Assistant, Augusta State Hospital, Augusta, Maine 04330.

Some recent writers have criticized the decisions to allow the numbers to accumulate at the expense of treatment capabilities. At the time, however, the specter of barbarities inflicted upon the mentally ill in the communities was not only a recent memory, it was a still present reality, despite a law of 1848 which made it illegal to house the insane in jails and dungeons.

Dr. Ray's complaint in 1841 that only 54 patients were housed in an institution designed for 120 is ironic in that in less than ten years overcrowding became a constant problem. Despite the construction of new dormitories at the average of one a decade for the next century, the establishment of another hospital in Bangor at the turn of the century, and the removal of large numbers of mentally retarded, no solution was ever found until the reduction in census beginning in the mid-1950's.

Throughout the early decades, no attempt was made to define and delimit strictly who the "insane" were who were proper subjects for hospital treatment. The first to be differentiated were the mentally retarded. Then, in 1888, Dr. Sanborn was complaining of the aged being sent to the hospital. In 1893, the trustees ordered the removal of patients who had become harmless and imbecile. This resulted in a net census reduction of 14 patients for that year.

This was the legacy to the twentieth century. Nineteenth century warehousing trends continued until, at mid-century, there occurred a revival of the therapeutic optimism of a century before. The reestablishment of concern with individual human dignity, small therapeutic communities, and faith that psychiatric intervention in the environment in combination with new somatic therapies could restore the mentally ill to their homes as functioning citizens, marked a new era. Federal legislation and funding through the Mental Health Center Act have made the ideals of moral treatment attainable once again.

Specifically, in the State of Maine these new developments have sparked fundamental changes in the State's mental health services. New admission policies at the State hospitals emphasize that the sole criterion for admission is mental illness. The hospitals are not to be used as nursing homes for the elderly poor, as a depository for socially incompatible, unwanted people, or to provide temporary resolution of crises which do not involve mental illness. The subsequent dramatic reduction in patient population makes it possible again to revive the optimism of the early years of statehood.

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THE MENTAL HEALTH ISSUE — *Continued from Page* 218

sult of an inadequate research base on which to base preventive programs but most often because the correlates of mental breakdown are beyond the influence of the professionals in mental health disciplines. They are joblessness, poverty, discrimination, poor housing, isolation due to absence of public transportation, inadequate access to good educational opportunities, poor facilities for the constructive use of leisure time . . . all factors which can only be influenced by public policy decisions and broad community commitment and effort. The mental health caretakers, however, can provide the "body counts" which result from these conditions as they produce emotional, behavioral and social problems of disease, dependency and delinquency. Primary prevention requires social and political action, and that cannot be other than the responsibility of the people.

Maine is moving ahead in its mental health services in a cooperative way with services funded by fees and local, State and federal dollars; by clinical efforts of an increasing number of private practitioners of the mental health disciplines; by relating the efforts of community-based private non-profit agencies and hospitals with the efforts of governmental hospitals; by combining the work efforts of professionals and non-professionals; and by attempting to meld research knowledge, clinical observations and public concern to effect changes in the nature and quality of the life of our people to relieve the stresses leading to breakdown.

The Experience of State Hospital Admission

Augusta and Bangor State Hospitals are increasingly concerned about the impact of psychiatric hospitalization on their patients.

There have been many studies which confirm that a hospital dehumanizes its patients in many ways, and that a hospital, represented by those who deal with patients, places its own institutional needs above the needs of sick people. This process seems to be especially noteworthy in mental hospitals.

To increase staff understanding of both the obvious and the insidious ways in which hospitalization may be a negative experience, two employees from the Bangor State Hospital were admitted to the Augusta State Hospital, and two employees from Augusta were admitted to the Bangor State Hospital. Only the superintendents and clinical directors of each hospital were aware of the true identity of these four "patients." There was no advance planning for this experience so that no leak was possible. All feel that the two employees admitted as patients were not identified for the five days of their experience, and that their hospitalization does fairly represent what happens to an average patient.

These employees are using this personal experience to instruct other staff members in an effort to promote better patient care especially in regard to meeting the human needs of the mentally ill who are admitted to our two State hospitals.

When a panel of patients and ex-patients recently discussed the problems of our mental hospitals, a patient said to one of these employees, "you knew that you would only be there for a few days; but when I went to the hospital. . . . How would you have felt not knowing for how long?"

We are all aware that any hospitalization is not "the best of all possible worlds." To the mentally ill who are often less capable of dealing with the emotions associated with hospitalization, it can be a most devastating experience.

The following was jointly written by the two Bangor State Hospital employees who were admitted to the Augusta State Hospital for a week. It describes some of the problems experienced by "patients."

Whose Needs Are Our State Institutions Meeting?

GLORIA J. SMITH

I was intrigued by the idea of finding out first hand what it feels like to be a patient in a psychiatric hospital. As an employee in such an institution, I was aware of hospital procedure and have had occasion to feel the conflict between serving the needs of the patient and the needs of the institution. To increase my understanding, I chose to become a patient.

Many of the people whom I met were kind and concerned but the institutional demands were strongly superimposed on their basic strengths.

The admitting staff is oriented in keeping good records and getting facts straight. Their interest in statistical information is so keen that they do not allow you to elaborate on any subject, but rather put words in your mouth to hasten the interview. They will only listen to factual-type information – never allowing you to focus on your feelings. To be sure that the factual information is accurate, one is often interrogated by a number of people. This type of interview conveys a feeling that they are afraid to hear what you want so desperately to share.

You are then taken to a ward, and when the large door slams and locks behind you, you sense a feeling of terror and desperation. Everything in your new environment is foreign, frightening and depressing. The sights and sounds experienced in the first few minutes are too numerous to begin to comprehend.

Being undressed and bathed by a stranger is a humiliating experience, but worse is to have all of one's symbols of self-sufficiency, independence and identity confiscated and sent to be labeled so as to prevent their loss. This practice is for the convenience of the hospital, and you pay the price, having temporarily lost articles that may stimulate feelings of security, independence and togetherness. After being disrobed and temporarily losing your material possessions, you are then obliged to wear "their" clothes.

Even after you go to bed, you find that the mattress and pillow are ungiving; not soft and enfolding or comforting, but cold and rejecting like the rest of the institution. As you lie there trying to go to sleep, perhaps you reflect again on the first few moments on the ward; the expressionless faces, unkempt appearances, schizophrenic mannerisms, spastic movements, slamming of doors, groans of the aged, cries of the retarded and screams of the disturbed. If the recollection of your previous experience of the day doesn't keep you from sleeping, the sounds of the disturbed patient pounding on the seclu-

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The Unitization of Augusta State Hospital

Roy A. Ettlinger, M.H.A.* and Wendall D. Kincaid, Ph.D.**

Mental hospitals have long been the focus of criticism. One critic (Mendell, W. M., *The Mental Hospital,* Medical World News, Psychiatry, 1969, issue 41-42, 1970.) has remarked: "I look forward to the day when the mental hospital will be only a memory in the history of medicine along with chains, leeches, and lobotomy." More moderate criticism has been justifiably focused on the mental hospitals' dehumanizing practices, its isolation from community life, its top-heavy bureaucratic structure, its lack of continuity with pre- and post-care facilities, its prison-like authoritarian atmosphere, etc. Yet, a need for the continuation of the State mental hospital exists as long as acutely disturbed and psychotic individuals cannot find a place of retreat, and rehabilitation within their own community. At the same time many have felt, especially the understaffed hospitals themselves, that the idea of being the custodial hospital, the State's largest nursing home, or the dumping ground for community nuisances destroyed even the most motivated staff member's attempt to provide a meaningful treatment program. How does one resolve this controversy, this need to rejuvenate but retain the mental hospital and to fully place it into a continuum of services for the disturbed person? Augusta State Hospital and the Department of Mental Health and Corrections chose to adopt the unit systems in its attempt to decentralize and de-isolate the hospital so that the hospital might play an active role in treatment. The plan organized Augusta State Hospital into four geographical units, and a psychiatric nursing home on December 7, 1971.

The Goals of Unitization: Unitization has a variety of objectives but chiefly these relate to promoting a closer, more consistent therapeutic relationship between *all* patients and staff and to effectively intergrate the mental hospital with the community clinics and resources. It should be noted here that 645 of 1,031 patients at Augusta State Hospital on April 1, 1972, could be considered long term institutionalized patients who have received essentially custodial care for 5 to 45 years. It is a fact of life that traditional acute-chronic ward model in large mental hospitals favor care for the younger, acutely disturbed, newly admitted patient. To overcome this, unitization places all patients of all age and diagnostic groupings together according to their county or residence. There are no longer chronic or violent wards and all patients have the advantage of learning from each other. The staff is distributed equally between these geographical units so that patient-staff ratios are uniform for all patients.

Consistency and continuity of care within the hospital are essential to maintaining any treatment program. The old hospital system with its acute and chronic wards, its separate departments of psychology, social service, nursing, volunteer services, occupational therapy, medical records, etc., fragmented both patient and staff. This required vast and complex communication networks to insure uniformity of approach with frequent breakdowns of message links. Unitization remedies this situation by eliminating hospital clinical departments and re-assigning their members to individual treatment teams. A treatment team consists of representatives from each discipline who are assigned approximately 50-70 patients to whom they provide all (except medical-surgical) 24-hour care. A geographical unit comprises from three to six teams; each team has about 25 staff members and these cover all three working shifts. The treatment team leader may be from any professional discipline. The majority of team leaders at Augusta State Hospital are registered nurses but also represented are psychiatric aides, social workers, and psychologists. Each unit is supervised by a unit chief, in most instances a psychiatrist, who has overall responsibility for the patients and employees on the treatment teams. In a sense, the unit chief treats patients through his teams. Within the broad policies of the hospital, the unit chief has the authority to plan, organize, implement and control treatment programs to meet the mental health needs of the community the unit serves. Each unit has its own budget and a fixed number of personnel so that decision making can be truly made in a decentralized fashion.

Unitization by geographical unit, and team also is designed to build smaller organizational entities which can be more responsive to patient and community needs. For example, a psychiatric aide or a psychiatrist need no longer be concerned with patients and local services from all counties south of Bangor. He need only relate to a few county clinics, physicians, and agencies. This enhances working relationships, joint planning, and modification of the unit to serve the community needs with mental health clinics. Examples for this increased coordination already in operation are: (1) Joint mental health clinic-hospital follow-up care planning; (2) Open admission of patients referred from the clinics (as clinics are able to provide psychiatric screening in keeping with hospital policy); (3) Joint conferences on discharge planning; (4) Staff sharing.

A characteristic of all bureaucratic structures is buck passing and scapegoating. One sees this between agencies, wards within hospitals and more broadly, the community as a whole and the mental health system. When a patient is received from the community his assignment is pre-determined; it is to his geographical unit. Similarly, the integration of community clinic and hospital

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seeks to eliminate buck passing by making each jointly responsible for patient program. The same staff at the hospital provides care from admission to release, may participate in follow-up care and the patient if readmitted within a year's time is returned to the same team. One's failures come back to haunt.

Another objective is to upgrade both the therapeutic potential and the self-esteem of the non-professional. It is a well accepted fact that in the old, medical-model, authoritarian hospital the psychiatric aide rarely received credit for being the primary therapist nor much training. The concentration of authority in the physician, who could hardly know 200 patients or more on a daily basis presented a constant paradox. The aide, for example, saw the patient 8 hours a day plus having a personal contact with relatives and visitors but had no recognized decision-making authority. Unitization helps to erase this paradox by assigning increased responsibility for decision-making to the non-professional, upgrading his status as a team member and involving him in post-hospital treatment programs. Hand in hand with such responsibility must go a massive increase in educational programs.

Unitization at Augusta State Hospital: On December 7, 1971, amid much trepidation, resistance from employees whose previous status was threatened, and warnings of dire consequences such as mass suicide by patients, patients and staff were reassigned and moved to buildings designated for particular counties. The infirmary moved to a new location first followed by a mass patient transfer. Only the Maximum Security Building remained intact although many of its patients had been reassigned to units previously. The following units were established: Unit I – Cumberland Unit (Cumberland County, excluding the Town of Brunswick) with Walter Rohm, M.D., the Unit Chief; Unit II – Southwest Coastal Unit (Sagadahoc, Lincoln and York Counties, the Town of Brunswick and out-of-bounds) with Theodore Radomski, M.D., the Unit Chief; Unit III – Ken-Som Unit (Kennebec and Somerset Counties) with Gerald Abraham, M.D., the Unit Chief; Unit IV – Tri-County Unit (Androscoggin, Franklin and Oxford Counties) with Wendall Kincaid, Ph.D., the Deputy Unit Chief and Gerald Abraham, M.D., the Unit Chief. A separate psychiatric nursing home unit with 250 patients is under the direction of Virginia Colby, R.N. The Maximum Security Unit was phased out in February 1972; its patients being distributed to their geographical units.

Unitization has been accompanied by many changes in, or reaffirmations of existing but ignored policy. It has been determined, strange as it may seem, that a psychiatric hospital has as its primary function the treatment of the mentally disturbed. That is to say, the hospital is not the county poor farm for the indigent and elderly who suffer only from disinterested relatives and the inability to pay for medical care. Many elderly people do indeed suffer from organic psychoses, conditions which disrupt and place undue strain upon their relatives and the community. Such individuals are rightly treated in the psychiatric facility yet many more could be managed in community nursing homes. Maine's elderly residents deserve the best of community efforts in their behalf. Thus, another objective is to limit admissions to Augusta State Hospital to those who are best and rightly served by it.

With the realization that a large number of patients had been at the hospital for countless years, were free from socially disruptive symptoms and in fact had been reduced by the negative effects of institutionalization to quiet, conforming apathetic individuals, a major re-socialization effort has begun. The hospital population has been reduced from around 1,550 in July of 1971, to 981 on April 30, 1972, largely as a result of these efforts. The return rate for placed patients is surprisingly low, around 15%, but probably will increase as the more institutionalized patients are tried in the community. Follow-up programs are in the process of being developed to assist in the adjustment of these former patients especially in counties where mental health clinics are understaffed.

Several new programs have been and are being developed to serve both the acute and chronically disturbed patients simultaneously. Most teams now hold daily group meetings conducted by the aides with an increasing emphasis on patient participation in setting behavioral rules, making decisions involving their own treatment plans. Remotivation programs under the able direction of Allen Strickland have been increased in number. Each team now plans its own recreational activities coordinated with treatment and only as justified by rehabilitation needs. The hospital has employed patients in programs supervised by the engineering staff, but the numbers are few due to funding difficulties. In fact, as it has been for many years, our general inability to pay patients even a token amount for their constructive work throughout the hospital is a serious detriment to their rehabilitation. The more verbal civil rights advocates amongst the patient population justifiably refuse to maintain the hospital for us without any recompense.

Another readjustment has taken place in admission policy as it pertains to the acutely intoxicated or drug-addicted individual. It is not and never has been true that Augusta State Hospital refuses admission to alcoholics. It is true, however, that the administration, along with medical authorities, consider the care of acute alcoholism and drug intoxication to be a medical emergency appropriately treated in a general hospital. Following detoxification, the psychiatric basis for the individual's addiction may be treated at the State Hospital. This policy has created must stress in the community. In recognition of this void in services, the hospital does maintain some flexibility in its policy on an individual case basis.

Problems of Unitization: Many areas of difficulty have been created by or surfaced under the impact of unitization. Chief amongst these are the financial burdens imposed by establishing semiautonomous units responsible for all the activities and programs of its patients. Closer staff-patient contact has highlighted many long neglected needs from the simple problems of needing 300 yards of drapery material to brighten a drapeless

unit and sporting goods for buildings which never had any, to financing cooking classes, staff visits to clinics and boarding homes, and proposed half-way programs. Without question, treatment costs more money in the short run than maintaining a custodial hospital. Other serious problems have developed in the areas of role definition . . . what is a team leader? . . . how does a unit chief learn the complexities of State budgeting? . . . what is the role of the psychologist when testing is no longer a routine, daily chore? Motivating and educating long-time psychiatric aides naturally comfortable in their previous expected role of custodian has consumed thousands of hours of staff time as has the problem of competition and coordination between shifts. Relationships between mental health clinics and the hospital have also run the gamut of enthusiastic cooperation to strained communication largely, it is thought, due to the clinic's need to vent years of frustration with the hospital's isolation and joint fears of "take-over." It is not expected that easy solutions to any of these difficulties will be found, much compromise and understanding are required.

Prospects and plans: Just beginning are efforts by the various units to improve the continuity between clinic and hospital. Future goals of hospital-clinic unitization now include: (1) All applicants to the hospital are first to be evaluated for suitability for admission by the mental health center; (2) Complete aftercare services are to be provided by the centers in cooperation with the hospital, and where possible, with staff sharing; (3) Discharge planning for patients at the State hospital will become a joint function of hospital and clinic. As time elapses one may expect to see staff from the facilities, hospital and community clinics, sharing offices at both locations and taking part in joint programs. Each unit is building to help fill the gaps in mental health services.

Following the lead of many hospitals in this country, including Bangor State Hospital, several units at Augusta State Hospital are planning to develop token economy programs so as to provide a multiplicity of treatment services. The token economy program is seen as being most applicable to the chronic patient whose symptoms have become fixed and who are firmly entrenched in their withdrawn, apathetic, self-neglectful attitudes. Another prospective program is that of the half-way house which will seek to bridge the gap between residential and community living. Depending on the major needs of the communities serviced by the geographical units, other programs may in the future be formulated. A major problem in rehabilitation involves occupational training. One finds a high percentage of male patients to be unskilled, jobless, and frequently switching employment. Admission to the hospital compounds this problem by placing on them the onus of being a mental patient and thus, when discharged, even less desirable to employers. The hospital must make major efforts to provide work attitude and skill proficiency training in the future.

WHOSE NEEDS ARE OUR STATE INSTITUTIONS MEETING? — *Continued from Page 221*

sion room door over your head will, or the flashlight of the night nurse shining in your eyes as she counts bodies.

There is little stimulus to mature, adult behavior. Even meals are served on divided trays like nursery school and pre-primary lunch programs.

For the most part the wards are so full of beds that there is not ample room for socializing. Often the area provided for this purpose is so small, with limited seating, that the seclusive or regressed patient is isolated even from this meagre social experience.

Ward duties are assigned to the alert, spontaneous patients – causing the others to feel worthless and without anything to contribute even to the institutional society.

Everything in the institution is designed to keep you in your place and to suppress your feelings. I was suppressed by medication to the point that I lost consciousness, was subsequently disoriented and unable to respond appropriately to simple questions. How frightening it is to be completely unable to communicate even your most basic needs. This is a feeling of helplessness and hopelessness.

It would be almost impossible for an employee to understand how a patient feels unless he has subjected himself to what is common or routine hospital procedure. Intellectually I can understand why these practices exist, but I am forced to conclude that the institution is meeting its own needs first rather than those of the patient.

The Suicidal Patient

Some Considerations in Evaluation and Management

STEPHEN SOREFF, M.D.*

In a variety of situations, the physician has to assess and manage the suicidal patient. A counselor, social worker, psychologist, teacher or minister may well seek medical consultation while working with a self-destructive individual. Not infrequently, a physician's ability to hospitalize or commit prompts people to request his assistance. In addition, the physician in his role of treating the survivor of a suicide attempt has the responsibility to assess further risk of self-destructive behavior, and often the civil authorities refer individuals for medical psychiatric evaluation. The aim of this paper is to present some theoretical and practical material that may be of assistance to the physician in assessing the suicidal patient. This paper is based on the fact that suicide is in many instances a preventable form of death.[5]

Most physicians are familiar with the statistical data correlating positively high suicide risk with increasing age, isolation, familial history of suicides, personal history of suicide attempts, long history of debilitating disease, terminal illness, alcohol, and depression and demonstrating women are more likely to attempt suicide while men are more likely actually to kill themselves. The data indicates the choice of implement is important: the more bizarre or violent the method, the higher the risk. Hanging, stabbing, and jumping carry high risks. Firearms account for over one-half of all male suicides; overdoses account for the majority of female ones.[3] For a more exhaustive review of suicide epidemiology, the reader is referred to the works of Shneidman,[2,5] Hendin[3] and Lester.[4]

The data does provide some generalizations on which to suggest a profile of the high and low risk patient. The high risk individual would be a 55-year-old white, male, divorced, unemployed, with a history of a brother who committed suicide, living alone, depressed, with history of C.O.P.D., under the influence of alcohol and possessing a loaded revolver. Conversely, a person at low risk would be a 21-year-old white, female, married, housewife, mother of two, and living with her husband.

Unfortunately, the statistical data has limited value when it comes to assessing the individual patient. As so often seen by the practitioner, patients do not read the books. Clinically, in two situations, the physician has to assess the suicide risk: 1) the management of the survivor of a suicide attempt, and 2) the evaluation of the individual threatening suicide.

There are several steps in the evaluation and management of a person who attempted suicide after the necessary medical attention has been rendered. First, the physician must obtain a history of present illness; namely, what has been going on in the patient's life: family, marriage, sex, work, religion and health. The more acute and identifiable the precipitants, the better is the prognosis. Conversely, the more mundane or vague the cause, the worse the prognosis. For example, in the case of a man whose wife just left him responding by mild overdoses: there is a good chance he can work through the grief reaction. However, the individual who overdosed because his Aunt Harriet died 20 years ago or because his television did not work may require a longer period of therapy. Family and friends are very useful in gaining a complete picture of the recent events.

Second, the physician must obtain a detailed history of the suicide attempt. It is not enough to know that the patient took 20 pills last night. The physician should ask the patient exactly what pills he took and when and where he took them. Further, what did the patient do after he took the pills – call someone, tell someone, leave a note? There is a great deal of difference between a man who goes to a strange city, registers under another name at a motel, takes 100 Aspirin and goes to bed, and is only discovered by accident the next morning; and a man who takes 100 Aspirin in his bedroom, while his family is downstairs and then calls his best friend to tell him what he just did.

Third, in addition to the routine mental status examination, there are a number of specific questions the physician should raise. "What did you hope to accomplish by your overdose?" This type of open ended question not only gives the physician much information about the patient, but also gets the patient to begin to consider the social consequences of his behavior. The question also provides the doctor with a glimpse into the patient's fantasy life. Not infrequently, patients report that they thought their death would deeply hurt another person and that then that person would realize how he had hurt the patient. "What is the risk that you will kill yourself?" In the author's experience, a response such as "Oh, Doctor, I did a very foolish thing by overdosing. I won't try that again" carries with it a good prognosis. Usually, the patient with adjacent following can be discharged. The "I want to die" response indicates a strong possibility of hospitalization. The "I'm not sure" response is the most difficult to assess. On occasion, homicide is known to be the other side of the suicide coin. The author vividly recalls a 28-year-old male brought to the emergency room because of threats to kill himself. However, the patient rapidly converted to threats of killing his brothers and

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the author. The author routinely makes inquiry into whether a patient is contemplating homicide. The physician should ask how the patient feels the doctor can help. The patient's reply may be of immense value in planning follow up. Finally, the physician should ask, "What are your plans for the future?" This question not only provides collateral information to the previous answer, but also furnishes some measure of the patient's judgment.

In the disposition there are several issues. If hospitalization is necessary, it is of therapeutic value to have the patient involved in that decision, by having asked the patient *how* he thought the physician could help, the patient is already participating in his own management. Ask the patient how he feels about hospitalization. If he recognizes it might help, he has already taken an important therapeutic step.

If discharge is planned, there are a number of important things to do. The most important thing is that a *change* be made in the patient's life. Without this change, one is sending the patient back into the same situation that he first attempted suicide. The change can take many forms, for example, a reconciliation with the spouse, the recognition of the patient's problem by the family, or the gaining of insight by the patient. The patient should not be sent out immediately alone. Family or friends, should stay with the patient. Sources of self-destructiveness, e.g., guns or large supplies of pills, should be removed from the house. If the patient is discharged on medication, he should be given a small, non-lethal amount. There must be some form of fairly immediate follow up. This could be a private therapist, the physician himself or a community mental health center. By doing these things, you have given the message that you hope the patient will do well. By your interest, concern, and active involvement with the patient in arranging disposition, you have conveyed the concept that the patient can be helped – is worth helping.

In the second situation, the physician has to evaluate the patient who is threatening suicide. Bearing in mind that people who talk about killing themselves do,[5] the physician should essentially follow the same procedure as with the first type. Namely, the doctor should obtain a history of present illness, marital status, inquire about suicide plans, future plans, and involve the patient in disposition. Some doctors are concerned that by inquiring into suicide plans they would give the patient the idea of killing himself. Actually, to the contrary, the patient has thought about suicide and appreciates your interest in him.

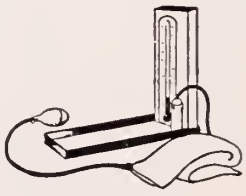
In both situations, the physician can provide a valuable service: he listens. Allowing the patient to tell his story and to express his depression is one of the most important therapies a physician can offer.

It is not uncommon for physicians to feel some resentment toward a suicidal patient. A position readily appreciated when one views the physician's role of life saver. It is of clinical value to the physician to realize that this resentment is also mirrored in the patient's family and employer. Further, the doctor can appreciate that if the patient stirred such feelings in him, what intense feelings must be within the patient!

In summary, suicide is often a preventable form of death. A physician, through proper evaluation and response, can reduce the probability of suicide. In assessing the patient, the physician must obtain a history of recent events, family history of suicide attempt, and a mental status. The physician must ask the patient if he plans to kill himself or someone else. The physician can provide therapy by listening to the patient and helping the patient with a disposition.

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Precautions: Do periodic serum electrolyte and BUN determinations. Do periodic hematologic studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in postsympathectomy patients. The following may occur: hyperuricemia and gout, reversible nitrogen retention, decreasing alkali reserve with possible metabolic acidosis, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), digitalis intoxication (in hypokalemia). Use cautiously in surgical patients. Concomitant use with antihypertensive agents may result in an additive hypotensive effect.

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Indicates estrogen excess.
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Age 19, small breasts, minor hirsutism, oily hair and skin. History of metrorrhagia, skipped or scanty menses. New user.
Indicates androgenic excess or estrogen deficiency (fertility is suspect).
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Age 25, average frame, poor complexion. No problem with menses, normal para 1. On a low-estrogen/high-progestogen O.C. for two years. Now complains of scanty flow, decreased libido, depression.
Indicates probable buildup of progestogen-related side effects.
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ge 21, short, mammose, with ormal menses, some acne. Was put n prenuptial regimen of 50-mcg.-strogen/moderate-progestogen .C. for two months. Now has ncreased acne.
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*Note: In some patients any level of exogenous estrogen or progestogen may produce symptoms of excess hormone activity.

Age 25, tall, slender, athletic, with flat chest. On a progestogen-dominant 50-mcg.-estrogen O.C. Has recurrent trichomoniasis and Monilia.
Indicates estrogen deficiency and excess of progestogen in current O.C.
1st choice: Switch to a combination pill with 100 mcg. estrogen and less progestational activity (such as **Enovid-E*** or **Ovulen*** or a sequential).

Age 23, "Miss America" figure, previously normal menses, healthy skin and hair. On a 50-mcg.-estrogen pill for four months. Complains of intracyclic bleeding.
Indicates probable need for more estrogen.
1st choice: Switch to a center-spectrum O.C. with more estrogen and moderate progestogen dominance (such as **Ovulen***).

Age 21, college senior, average build. On highly progestogen-dominant/low-dose-estrogen O.C. for six months. Now complains of amenorrhea, between-cycle headaches, weight gain.
Indicates probable progestogen excess.
1st choice: Switch to a center-spectrum pill (such as **Ovulen***).

Age 27, slightly overweight, multiparous. Nausea with all three pregnancies and with a sequential O.C. three years ago. Has premenstrual fluid retention and leg cramps.
Indicates probable excess of estrogen.
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Each pink tablet in Ovulen-28® and Demulen®-28 is a placebo, containing no active ingredients.

Actions – Ovulen and Demulen act to prevent ovulation by inhibiting the output of gonadotropins from the pituitary gland. Ovulen and Demulen depress the output of both the follicle-stimulating hormone (FSH) and the luteinizing hormone (LH).

Special note – Oral contraceptives have been marketed in the United States since 1960. Reported pregnancy rates vary from product to product. The effectiveness of the sequential products appears to be somewhat lower than that of the combination products. Both types provide almost completely effective contraception.

An increased risk of thromboembolic disease associated with the use of hormonal contraceptives has now been shown in studies conducted in both Great Britain and the United States. Other risks, such as those of elevated blood pressure, liver disease and reduced tolerance to carbohydrates, have not been quantitated with precision.

Long-term administration of both natural and synthetic estrogens in subprimate animal species in multiples of the human dose increases the frequency of some animal carcinomas. These data cannot be transposed directly to man. The possible carcinogenicity due to the estrogens can be neither affirmed nor refuted at this time. Close clinical surveillance of all women taking oral contraceptives must be continued.

Indication – Ovulen and Demulen are indicated for oral contraception.

Contraindications – Patients with thrombophlebitis, thromboembolic disorders, cerebral apoplexy or a past history of these conditions, markedly impaired liver function, known or suspected carcinoma of the breast, known or suspected estrogen-dependent neoplasia and undiagnosed abnormal genital bleeding.

Warnings – The physician should be alert to the earliest manifestations of thrombotic disorders (thrombophlebitis, cerebrovascular disorders, pulmonary embolism and retinal thrombosis). Should any of these occur or be suspected the drug should be discontinued immediately.

Retrospective studies of morbidity and mortality conducted in Great Britain and studies of morbidity in the United States have shown a statistically significant association between thrombophlebitis, pulmonary embolism, and cerebral thrombosis and embolism and the use of oral contraceptives. There have been three principal studies in Britain[1,3] leading to this conclusion, and one[4] in this country. The estimate of the relative risk of thromboembolism in the study by Vessey and Doll[3] was about sevenfold, while Sartwell and associates[4] in the United States found a relative risk of 4.4, meaning that the users are several times as likely to undergo thromboembolic disease without evident cause as nonusers. The American study also indicated that the risk did not persist after discontinuation of administration and that it was not enhanced by long-continued administration. The American study was not designed to evaluate a difference between products. However, the study suggested that there might be an increased risk of thromboembolic disease in users of sequential products. This risk cannot be quantitated, and further studies to confirm this finding are desirable.

Discontinue medication pending examination if there is sudden partial or complete loss of vision, or if there is a sudden onset of proptosis, diplopia or migraine. If examination reveals papilledema or retinal vascular lesions medication should be withdrawn.

Since the safety of Ovulen and Demulen in pregnancy has not been demonstrated, it is recommended that for any patient who has missed two consecutive periods pregnancy should be ruled out before continuing the contraceptive regimen. If the patient has not adhered to the prescribed schedule the possibility of pregnancy should be considered at the time of the first missed period.

A small fraction of the hormonal agents in oral contraceptives has been identified in the milk of mothers receiving these drugs. The long-range effect to the nursing infant cannot be determined at this time.

Precautions – The pretreatment and periodic physical examinations should include special reference to the breasts and pelvic organs, including a Papanicolaou smear since estrogens have been known to produce tumors, some of them malignant, in five species of subprimate animals. Endocrine and possibly liver function tests may be affected by treatment with Ovulen or Demulen. Therefore, if such tests are abnormal in a patient taking Ovulen or Demulen, it is recommended that they be repeated after the drug has been withdrawn for two months. Under the influence of progestogen-estrogen preparations preexisting uterine fibromyomas may increase in size. Because these agents may cause some degree of fluid retention, conditions which might be influenced by this factor, such as epilepsy, migraine, asthma, cardiac or renal dysfunction, require careful observation. In breakthrough bleeding, and in all cases of irregular bleeding per vaginam, nonfunctional causes should be borne in mind. In undiagnosed bleeding per vaginam adequate diagnostic measures are indicated. Patients with a history of psychic depression should be carefully observed and the drug discontinued if the depression recurs to a serious degree. Any possible influence of prolonged Ovulen or Demulen therapy on pituitary, ovarian, adrenal, hepatic or uterine function awaits further study. A decrease in glucose tolerance has been observed in a significant percentage of patients on oral contraceptives. The mechanism of this decrease is obscure. For this reason, diabetic patients should be carefully observed while receiving Ovulen or Demulen therapy. The age of the patient constitutes no absolute limiting factor, although treatment with Ovulen or Demulen may mask the onset of the climacteric. The pathologist should be advised of Ovulen or Demulen therapy when relevant specimens are submitted. Susceptible women may experience an increase in blood pressure following administration of contraceptive steroids.

Adverse reactions observed in patients receiving oral contraceptives – A statistically significant association has been demonstrated between use of oral contraceptives and the following serious adverse reactions: thrombophlebitis, pulmonary embolism and cerebral thrombosis.

Although available evidence is suggestive of an association, such a relationship has been neither confirmed nor refuted for the following serious adverse reactions: neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis.

The following adverse reactions are known to occur in patients receiving oral contraceptives: nausea, vomiting, gastrointestinal symptoms (such as abdominal cramps and bloating), breakthrough bleeding, spotting, change in menstrual flow, amenorrhea during and after treatment, edema, chloasma or melasma, breast changes (tenderness, enlargement and secretion), change in weight (increase or decrease), changes in cervical erosion and cervical secretions, suppression of lactation when given immediately post partum, cholestatic jaundice, migraine, rash (allergic), rise in blood pressure in susceptible individuals and mental depression.

Although the following adverse reactions have been reported in users of oral contraceptives, an association has been neither confirmed nor refuted: anovulation post treatment, premenstrual-like syndrome, changes in libido, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, fatigue, backache, hirsutism, loss of scalp hair, erythema multiforme, erythema nodosum, hemorrhagic eruption and itching.

The following laboratory results may be altered by the use of oral contraceptives: hepatic function: increased sulfobromophthalein retention and other tests; coagulation tests: increase in prothrombin, Factors VII, VIII, IX and X; thyroid function: increase in PBI and butanol extractable protein bound iodine, and decrease in T^3 uptake values; metyrapone test and pregnanediol determination.

References: 1. Royal College of General Practitioners: Oral Contraception and Thrombo-Embolic Disease, J. Coll. Gen. Pract. *13*:267-279 (May) 1967. **2.** Inman, W. H. W., and Vessey, M. P.: Investigation of Deaths from Pulmonary, Coronary, and Cerebral Thrombosis and Embolism in Women of Child-Bearing Age, Brit. Med. J. *2*:193-199 (April 27) 1968. **3.** Vessey, M. P., and Doll, R.: Investigation of Relation Between Use of Oral Contraceptives and Thromboembolic Disease. A Further Report, Brit. Med. J. *2*:651-657 (June 14) 1969. **4.** Sartwell, P. E., Masi, A. T., Arthes, F. G., Greene, G. R., and Smith, H. E.: Thromboembolism and Oral Contraceptives. An Epidemiologic Case-Control Study, Amer. J. Epidem. *90*:365-380 (Nov.) 1969.

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Indication – Enovid-E is indicated for oral contraception.

The *Special Note, Contraindications, Warnings, Precautions* and *Adverse Reactions* listed above for Ovulen and Demulen are applicable to Enovid-E and should be observed when prescribing Enovid-E.

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Maine Medical Association

STANDING COMMITTEES — 1972-1973

Standing Committees for 1972-1973 as proposed by the Committee on Nominations and approved at the Second Meeting of the House of Delegates of the Maine Medical Association at Kennebunkport, Maine, June 11, 1972.

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Committee on Allied Health Professions

William L. MacVane, Jr., M.D., 211 State St., Portland 04101 (2 yrs.) – Chairman
George W. Hallett, M.D., 22 Bramhall St., Portland 04102 (2 yrs.)
George W. Bostwick, M.D., P.O. Box 388, Newcastle 04553 (1 yr.)
Donald M. Robertson, M.D., Box 188, Milbridge 04658 (1 yr.)
Robert G. MacBride, M.D., 25 Washington St., Lubec 04652 (3 yrs.)

Committee on Continuing Education

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Robert H. Pawle, M.D., 251 U. S. Rt. 1, Falmouth 04105 (2 yrs.)
Bradley E. Brownlow, M.D., Blue Hill Mem. Hospital, Blue Hill 04614 (1 yr.)
Stanley E. Herrick, Jr., M.D., Central Maine Gen. Hosp., Lewiston 04240 (1 yr.)
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Delegate and Alternate Delegate to AMA

(January 1, 1972 to January 1, 1974)
Delegate – George W. Wood, III, M.D., 156 No. Main St., Brewer 04412
Alternate Delegate – Robert E. McAfee, M.D., 7 Bramhall St., Portland 04101

NATIONAL BOARD OF DIRECTORS MEET

The latest meeting of the Board of Directors of the National Association of Blue Shield Plans was concerned with many topics of interest to Maine physicians. Foundations for Medical Care, no-fault auto insurance and liaisons with medical and institutional organizations were among the topics discussed by the Board.

The Board heard a report from the NABSP Liaison Committee with the American Association of Foundations for Medical Care, which recommended adoption of a Joint Statement developed with the Liaison Committee from AAFMC. The Board adopted the statement which reads as follows:

Interface Between Foundations for Medical Care and Blue Shield Plans

"The private sector should develop Peer Review mechanisms for physicians and other providers of health care services. Foundations for Medical Care are recognized as mechanisms constituted to provide Peer Review.

"Foundations for Medical Care and Blue Shield Plans should work to develop mutually acceptable standards of claims processing designed to facilitate the Foundation function of Peer Review.

"Blue Shield Plans can look to Foundations as a communications channel to physicians, consumer groups, hospitals, and other providers of service.

"Foundations can look to Blue Shield Plans to provide computer technology in claims processing, underwriting, marketing, and research and development.

"It is believed that it would be mutually beneficial to have continuing liaison at the Board level between the American Association of Foundations for Medical Care and the National Association of Blue Shield Plans.

"It is further recommended that appropriate liaison at the local level be encouraged between the Boards of Foundations for Medical Care and Blue Shield Plans."

The Board deferred action on a proposed resolution on no-fault auto insurance. The resolution, identical to that recently passed by the Blue Cross Association Board of Governors, would have urged Plans to take a more positive stance in support of the earlier policy that health care carriers should retain primary responsibility for health care coverage under no-fault. The Board directed that a thorough study be made and reported, with recommendations from staff, at the next meeting.

Maine legislators are taking keen interest in no-fault accident insurance, and Maine Blue Cross and Blue Shield has seen fit to take a stand commensurate with that of the Blue Cross Association. "No-fault accident insurance may become a reality for Maine in the very near future," said Richard F. Nellson, President of Maine Blue Cross and Blue Shield," and we feel that the best interests of Maine consumers and providers of health care would be represented if Blue Cross and Blue Shield coverage were adopted as the health coverage for no-fault. Over half the citizens of Maine are already covered by Blue Cross and Blue Shield, and it would be absurd for them to have to pay for duplicate health coverage through a no-fault auto insurance policy."

Medical and Institutional Liaison

A report was accepted on the third NABSP-BCA Liaison Meeting with Medical and Institutional Organizations held May 12, in Chicago. The report stated that 12 organizations were represented at the meeting which discussed state and regional data on outpatient x-ray and laboratory under the Federal Employee Program. It was agreed by those attending the meeting that carriers, particularly Blue Cross and Blue Shield, have a leading role to play in utilization review. It was also agreed that a fourth meeting should be held after the staff from NABSP, BCA, AMA and AHA have worked with various specialty organizations to develop guidelines of care for common diagnoses.

In other actions, the board approved the minutes of the Medical Advisory Committee calling for further exploration of the problem of reimbursing anesthesiologists for supervision of nurse anesthetists. Also accepted was the recommendation that further informal contact take place between NABSP and AMA regarding the four digit code and terminology.

Maine Heart Association Notes
20 Winter Street, Augusta, Maine

Treatment of Cardiogenic Shock — Part II

Lawrence S. Cohen, M.D.*

Assisted Circulation

As indicated in Part I of this review, the major abnormality in cardiogenic shock is failure of the left ventricle as an effective pump. To this end, considerable effort has been expended in the development of cardiac assist devices to help the left ventricle which has been damaged as a consequence of a myocardial infarction.

Many lessons concerning prolonged assisted circulation were learned from surgical procedures utilizing extracorporeal circulation. Although the heart-lung machine may take over completely the functions of oxygenation and pumping of blood, there are many limitations to this technique for patients in cardiogenic shock. The need for a thoracotomy in a critically ill patient virtually rules out any potential efficacy of this approach. In addition, the problems of hemolysis, plasma protein changes, clotting, infection and post perfusion lung make prolonged extracorporeal circulatory techniques unfeasible for patients with cardiogenic shock.

Modifications of total extracorporeal circulatory assist have been utilized as temporary measures to help support a failing circulation. *Veno-arterial* pumping is one of these modifications. With this method, blood is withdrawn through a cannula introduced into the central venous system from the femoral vein. Blood is pumped into the arterial system from the femoral vein. If the venous blood is passed through an oxygenator, the patient is on partial heart lung bypass for all practical purposes. If no oxygenator is utilized, the procedure is much simpler but anticoagulant drugs still are necessary to prevent clotting within the system. It has been demonstrated that the lower body and extremities can tolerate prolonged periods of perfusion with venous blood.

Left Heart Bypass

This method of assisted circulation removes oxygenated blood from the left atrium and returns it to the systemic circulation. By so doing, flow to the left ventricle is diminished by the amount removed from the left atrium. The pump is in series with the right ventricle and lungs but in parallel with the left ventricle. By reducing cardiac inflow, the distended left ventricle is given some degree of rest. It is likely that myocardial oxygen consumption is diminished as end diastolic ventricular volume and radius are decreased. Left heart bypass may be accomplished with or without thoracotomy. In the context of a patient in cardiogenic shock, a method requiring thoracotomy is obviously not feasible. As an adjunct to postoperative care, this method has been utilized with some success.

A method of left heart bypass which does not require a thoracotomy has been developed. A transseptal cannula introduced into the external jugular vein is passed across the atrial septum into the left atrium. Although this method of cardiac assist was reported over ten years ago, there is still no clinical trial demonstrating its efficacy for patients after a myocardial infarction.

Although any of the above mentioned forms of assisted circulation do reduce the flow work of the left ventricle, it has been demonstrated that myocardial oxygen consumption is much more closely related to pressure work. A method of assisted circulation that reduced the pressure work of the left ventricle would theoretically be of considerable benefit in reducing myocardial oxygen requirements.

Arterio-arterial pumping or counterpulsation is a form of assisted circulation that can reduce the systolic pressure against which the left ventricle must pump. In addition, counterpulsation raises aortic diastolic pressure thereby increasing coronary blood-flow. In 1961, Harken, *et al* reported on a counterpulsation device which involved cannulation of the femoral arteries. By synchronization with the electrocardiogram, the pump aspirated blood from the femoral arteries during cardiac systole and returned blood to the central circulation during cardiac diastole. Considerable diastolic augmentation was achieved. Other investigators using synchronized counterpulsation in dogs found that myocardial oxygen consumption decreased by over 20 percent and coronary blood flow was increased by 50 percent.

A variation upon the method of counterpulsation is that produced by the use of an intra-aortic balloon. This technique involves the inflation of an intra-aortic balloon at the onset of diastole and its deflation at the onset of systole. The advantages of this method are that it is totally intravascular and no blood is handled outside the body. There is less hemolysis in this technique than in counterpulsation devices which depend upon aspiration and return of

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Prepared by the Maine Heart Association for this Journal.

blood to the vascular system for their hemodynamic effects. Heparin must be used, however, because of clotting of blood around the balloon. Rupture of the balloon with introduction of gas emboli into the vascular system is a potential hazard. Damage to the aortic wall by overdistention of the balloon may occur. Although an arteriotomy must be made for introduction of the balloon into the vascular system, there is no need for the diversion of blood through a conduit of foreign material.

Because of the desirability of having a cardiac assist device which is completely non-invasive, counterpulsation utilizing external body compression has been a goal of several groups of investigators. Such a device could be applied quickly, be free of any extracorporeal handling of blood, have no need for anticoagulants and would not involve any operative intervention. Because of these features, it might be available to a patient earlier in the course of cardiogenic shock before prolonged hypoperfusion of vital organs made survival unlikely. Counterpulsation of the extremities involves displacement of blood retrograde into the central aorta during diastole and increasing the capacity of the arterial system during systole so as to draw blood from the aorta.

Dennis and his associates utilized a pressure sleeve on the hind limbs of dogs and applied synchronous counterpulsation. Osborn utilized a half-body pressure suit but this was found to be uncomfortable when applied to normal volunteers. Keith found similar results when human volunteers were utilized. Soroff and his associates have also evaluated external pressure suits with and without simultaneous external cardiac massage. The combination of external assist plus external cardiac massage was more successful in resuscitating dogs who were in ventricular fibrillation than was external assist alone.

In 1968, a series of physiologic studies leading to the development of an external cardiac assist device called The Sequenced Pulsator was initiated by the author and several of his colleagues. The rationale of sequenced pulsation in contrast to nonsequenced external pulsation is based on theoretical considerations underlying the effect of externally applied pressure to varying sized vessels in the extremity. Large vessels with a small wall thickness to lumen ratio more readily collapse in response to externally applied pressure than do smaller vessels which have a large wall thickness to lumen ratio. A uniformly applied external pressure to an extremity during diastole would therefore be anticipated to collapse the larger, proximal vessels first, thereby impeding return of blood to the central aorta.

The sequenced pulsator consists of arm and leg sections which are divided into multiple zones, each of which may be individually and separately activated to externally compress the enclosed body tissue. Activation is accomplished by inflating a chamber in each zone with compressed air. Flexible hoses connect the pressure enclosures for the arms and legs to the pressure and timing controller. The electrocardiographic signal from the patient directs the sequenced inflation of the zones through a series of solenoid valves. At the onset of the QRS complex, all



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pressure is simultaneously evacuated from the extremity cuffs. With such a mode, the heart will never pump against a pressure wave produced by the assist device. The onset of cuff inflation can be set manually according to the length of cardiac systole. At the onset of cardiac diastole, the sequenced pressure inflation is begun. By inflating the cuffs at the beginning of diastole, blood is returned to the central circulation with a consequent rise in central aortic pressure. When the ventricle contracts, there is diminished resistance in the periphery due to the previous emptying of arterial blood into the central circulation during the previous diastole. Sequenced pulsation has a milking effect upon the arterial and venous beds as pressure is applied sequentially from more distal to proximal sites. Although the sequenced pulsator has not yet been utilized in the therapy of patients in cardiogenic shock, the preliminary laboratory results indicate that external sequenced pulsation can augment cardiac output and aortic diastolic pressure.

Circulatory assist devices have the combined aim of decreasing left ventricular work and also of increasing coronary blood flow. By so doing, it is hoped that a severely damaged left ventricle may be able to compensate and take over from the support device. Since cardiogenic shock is likely to be self perpetuating once prolonged hypoperfusion of vital organs occurs, earlier application of assist devices may help certain patients in cardiogenic shock. It must be recognized however that even with the early application of an assist device ischemic areas of myocardium may progress to the stage of necrosis. Acute revascularization of the myocardium with a saphenous vein bypass graft may be helpful and necessary in selected cases. The role of the circulatory assist device in these instances will be to stabilize the patient while diagnostic studies such as selective coronary arteriography are performed. The success of this approach will have to be assessed as experience with saphenous vein bypass grafting increases and the long range prognosis of the grafts becomes clearer.

Mileage Was a Problem Even Then — Unless You Could "Call While Passing By"

TABLE OF CHARGES,
FOR PROFESSIONAL SERVICES,
Adopted by the Physicians of Augusta, Hallowell, Gardiner and Pittston,
August 5, 1864.

For visit and prescription within a mile,	$1.50
Each additional mile, and fraction of a mile,	.37 to .50
Subsequent visits during the day,	1.00
Visit in the night,	3.00
Office fee, from	1 to 2.00
Minor operations in the office,	1 to 5.00
Consultation visit,	3.00
Dressing wounds,	1 to 5.00
Attending a case of obstetrics,	8.00
Protracted, complicated and instrumental labor,	9 to 15.00
Abortion,	8.00
Subsequent visits, usual fee,	1.50
Amputation,	leg 45, arm 20.00
Trepanning,	30.00
Tapping for ascites,	8.00
Tapping for hydrocele,	5.00
Removing tonsils,	8.00
Reducing fracture of thigh or leg,	20.00
Reducing fracture of arm or fore arm,	15.00
Reducing fracture of clavicle,	8.00
Reducing fracture of small bones,	3.00
Reducing dislocation of hip joint,	20.00
Reducing dislocation of knee or elbow,	15.00
Reducing dislocation of shoulder, wrist or ankle,	8.00
Reducing dislocation of small bones,	2.00
Reducing dislocation of clavicle,	8.00
Visit and cupping,	2.00
Cupping,	1.50
Vaccination,	office 1, house 1.50
A call while passing by,	1 to 1.50
Reducing hernia,	5.00
Operating for hernia,	30.00

It shall be the duty of every member of the profession to present all accounts, and endeavor to obtain a settlement of the same at least once in every year.

No member of the profession shall make a contract to attend an individual, or a family, by the year, or on any other terms than those authorized by these regulations.

S. WHITMORE, T. HILDRETH,
H. SMALL, A. F. PLIMPTON,
J. W. NORTH, JR., H. H. HILL,
W. E. BRICKETT, C. BRIGGS,
P. MERRILL, JOHN HUBBARD.
M. C. RICHARDSON.

News, Notes and Announcements

American Association of Medical Assistants, Inc.
State of Maine

INVITES ALL MEDICAL ASSISTANTS AND STUDENTS IN MEDICAL ASSISTING TO ATTEND THE:

EDUCATIONAL SEMINAR

Advances in Cardiology and Cardiac Surgery

To be held:	Sunday November 5, 1972
At:	Maine Medical Center 22 Bramhall St. Portland, Maine 04102 Classrooms 2 & 3 (Bramhall St. Entrance – Next to Coffee Shop)
9:00- 9:30	REGISTRATION
9:30-10:00	MAMA BUSINESS MEETING
10:00-10:15	COFFEE BREAK
10:15-11:15	Cardiologist, Paul R. Minton, M.D. – Guest Speaker
11:15-12:30	Tour of Cardiac Facilities conducted by Mrs. Virginia Charlton, Cardiac Cath. Lab. Technician
12:30- 1:15	LUNCH (Dutch Treat – Pick up your own tray, MMC Cafeteria)
1:30- 2:30	Cardiac Surgeon, Jeremy Morton, M.D. – Guest Speaker
2:45	Seminar Adjourned.

Registration fee: MAMA member, $3.00; Guest, $3.00; Student, No charge.

Make checks payable to: Maine Association of Medical Assistants. Send check and Registration to: Mrs. Diane Shepley, Registration Chairman, MAMA, 208 Vaughan St., Portland, Maine 04102.

American Rheumatism Association Meeting

A one and a half day scientific meeting of the American Rheumatism Association Section of The Arthritis Foundation will take place at the Pittsburgh Hilton Hotel on December 8 and 9, 1972.

On Thursday, December 7, the traditional scientific workshops of one-half day each will be presented. The morning session is entitled "Virus Induced Transformation of Normal Cells: Lessons from Cancer Research." In the afternoon, two concurrent sessions will cover "Genetic Mucopolysaccharide Storage Diseases (Mucopolysaccharidoses)" and "The *Real* Collagen Diseases." Registration fee for each session is $25.00.

An innovation (also on Thursday) will be six clinical postgraduate seminars on arthritis, directed at practicing physicians and conducted by distinguished leaders in the field. The seminars will be two hours each with two running concurrently. Registration is limited to 30 persons per seminar and the fee is $20.00 each. Topics are: "Radiology of Rheumatoid Arthritis," "Laboratory Techniques in Rheumatic Disease," "The Management of Septic Arthritis," "The Examination of Renal Involvement in Connective Tissue Disease," "Ocular Syndromes in Rheumatic Disease" and "Office Rehabilitation in Rheumatic Disease."

For further information contact Miss Lynn Bonfiglio, Executive Secretary, American Rheumatism Association Section, The Arthritis Foundation, 1212 Avenue of the Americas, New York, New York 10036.

The Department of Postgraduate Medicine of Albany Medical College

announces

Reservations Now Being Accepted for the Fourteenth Postgraduate Medical Seminar Cruise

January 5-22, 1973

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Faculty of the Albany Medical College will present a comprehensive shipboard postgraduate program, covering subjects in pediatrics, psychiatry, surgery, hematology and physiology.

Request has been made for continuation study credit by the American Academy of Family Practice.

For information write to: Frank M. Woolsey, Jr., M.D., Department of Postgraduate Medicine, Albany Medical College, Albany, New York 12208.

Postgraduate Course in Pediatrics

The 22nd Annual Postgraduate Course in Pediatrics of The University of Texas Medical Branch will be held in Galveston, Texas, March 15 and 16, 1973. The course will emphasize "Problems of Office Pediatrics" with guest lecturers Victor C. Vaughan, III, M.D. and John B. Reinhart, M.D.

This program is acceptable for 12 prescribed hours by the American Academy of General Practice and registration fee will be $75.00. Further information will be furnished by Lillian H. Lockhart, M.D., Chairman, Pediatric Postgraduate Committee, the University of Texas Medical Branch, Galveston, Texas 77550.

Manual for Treatment of the Respiratory Disease Patient Available

The Maine Tuberculosis and Health Association reports that it has on hand a supply of copies of the manual entitled "Standards for the Care of Patients with Chronic Respiratory Disease."

Issued in 1971 by the National Tuberculosis and Respiratory Disease Association, the manual was selected by conferees of the 1971-72 Maine Respiratory Disease Conference as being the most authoritative guide to date for care and treatment of the chronic ambulatory respiratory disease patient.

Write or call the Maine Tuberculosis and Health Association, 20 Willow Street, Augusta, for copies of the manual. Copies of the Conference Report are also available upon request.

County Society Notes

PENOBSCOT

A regular meeting of the Penobscot County Medical Society was held on February 15, 1972 at the Red Lion, Bangor, Maine, with Dr. Benjamin L. Shapero, president-elect, presiding. Approximately 53 members and guests were present. A business meeting was deferred at the request of the Society.

The guest speaker, Representative William Hathaway, briefly reviewed some of the current National Health Insurance proposals. He strongly supported the Health Security Act and stated that he would personally present recommended modifications for review. An active discussion followed.

A regular meeting of the Penobscot County Medical Society was held at the Tarratine Club, Bangor, Maine on March 21, 1972, with Dr. John S. Houlihan presiding. Approximately 40 members and guests were present.

The minutes of the previous meeting were approved as read.

Dr. Robert H. Brown, the guest speaker, discussed the developing Rehabilitation Program at Eastern Maine Medical Center. He spoke of the desire of a multiple discipline and team approach. Currently, an Occupational Therapist is being sought. Eventually he feels there should be a Physiatrist. Level four of the new building program is designated as a Rehabilitation Unit – containing 52 beds. Also, the question was raised of the desirability of an extended care facility at the EMMC with a couple of beds being available for Rehabilitation.

LEWIS E. PHILLIPS, M.D., *Secretary*

The regular meeting of the Penobscot County Medical Society was held on April 18, 1972 at the Hayloft Restaurant at the Stable Inn in Brewer, Maine, with Dr. Benjamin L. Shapero presiding. Approximately 30 members were present to enjoy the delicious prime rib meal with wine furnished by the management.

The minutes of the meeting of March 21 were read and accepted. The speaker for the evening was Mr. Richard Lamping who spoke concerning the Counselling Center and its relationship to the community, including the physicians. There was considerable discussion with Mr. Lamping as to the mode of operation of the Counselling Center and I think most people present were informed a bit more as to its purpose. It was mentioned by Mr. Lamping that they are extremely weak in the psychiatric treatment of the patients in the Counselling Center but were working to improve this status.

It was mentioned by Dr. Robert J. Barrett that the great majority of members present for the meeting were physicians of older vintage and he would hope many of the younger physicians do attend the medical society meetings in the future.

PHILIP R. KIMBALL, M.D., *Secretary pro tem*

Letters to the Editor

To the Editor:

Project for Maine Medicine

In the legislative halls of the States of Michigan, Iowa, Alabama, Georgia and Florida, they have physicians of the day.

Doctors take turns standing by, when the legislature is in session – with their black bag in case of emergency. But they are also there as a non-lobby for the profession. They are available for answering questions pertaining to medicine and health. They become aware of health care activities and bills before the legislature. Individual legislators can get facts from them.

And, it's great public relations for the doctors.

Maine Medical Association should form a committee to implement this plan here in our State. The vast majority of doctors are within a sixty mile radius of Augusta and there's no reason why it couldn't be done here. Osteopathic physicians should be included.

SIDNEY R. BRANSON, M.D.
South Windham, Maine 04082

To the Editor:

We are preparing for our Diabetes Program in Maine and would like to submit the following news item for the Journal. "Diabetes Week is to be observed Nationally and in Maine from November 12th to 18th, 1972." It is a combined effort of the American Diabetes Association and here in Maine by the Maine Medical Association. We urge all members of the Maine Medical Association to participate in this very worthwhile Diabetes Detection and Education Program.

Each County Medical Society has been requested to select one of its members to serve as Chairman of their respective Diabetes Committees. They will conduct the County Programs. We realize that all of you are very busy; therefore, we have attempted to make this as easy as possible for you.

All the television stations have been contacted as well as newspapers, radio stations, movie theatres, colleges and hospitals, asking them to participate. In addition, we have contacted all the Heads of the various religious denominations asking them to participate in this endeavor. The Maine Pharmaceutical Association, under the directive of Alcide Nadeau, PH. G., their State Chairman, will assist our State Association in this program by distributing Dreypak kits and pamphlets to their customers and displaying Diabetes posters in their various stores.

All hospitals in the State have been asked to carry on a testing program for Glycosuria and to distribute pamphlets, display posters and to carry on a blood sugar testing program as well as conducting programs of instructions on Diabetic Diets for their patients as well as for the laity in their various areas. Methods available for checking for Glycosuria will be Testape and Dreypak kits. Physicians and hospitals are asked to check for Glycosuria free during this week.

At a later date we will publish a list of the various County Medical Society Diabetes Committee Chairmen. He will receive supplies from the American Diabetes Association in New York. Please cooperate with the Diabetes Program Chairman in your area.

MELVIN BACON, M.D.
Chairman, Diabetes Committee
Maine Medical Association

To the Editor:

Dear Fellow Health-Law Professional,

We invite you to join colleague physicians, attorneys, jurists, adjudicators, insurance representatives, educators, and other professionals concerned with medicolegal matters in the MASSACHUSETTS SOCIETY OF LAW & MEDICINE.

The MASSACHUSETTS SOCIETY OF LAW & MEDICINE, an organization unique in our country, provides a fertile meeting ground and united forum where members of the various disciplines intimately involved in the myriad of legal and insurance claims stemming from trauma, illness and disease can, in a friendly atmosphere, exchange ideas, information, and pertinent knowledge to the desired goal of prompt and equitable resolution of disputed medicolegal issues.

The MASSACHUSETTS SOCIETY OF LAW & MEDICINE is the successor to the Massachusetts Society of Examining Physicians originally chartered in 1911. The revitalized Constitution and By-Laws of the parent organization now offer equal footing membership to the multidisciplined professionals who are responsible for solving problems arising in the area of legal medicine.

Our purpose, aims and goals are primarily educational, and our efforts and programs will be geared toward bridging the gaps between the professions of Law, Medicine, Insurance and Judiciary.

We hope that you will join us with active participation in our membership and programs. For further information, please write to me at 454 Brookline Avenue, Boston, Massachusetts 02215.

ELLIOT L. SAGALL, M.D.
President



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The Journal
of the
Maine Medical Association

Volume Sixty-three | Brunswick, Maine, November 1972 | Number 11

Medical Audit Committee Report on Gastrointestinal Bleeding

Newell A. Augur, Jr., M.D.

The purpose of this review was to examine the management of all patients who had been admitted to the Maine Medical Center with melena or hematemesis at the time of or within 24 hours of admission. Over a 22-month period through October 1971, ninety-two records which met these criteria were found. We looked for initial characteristics which would indicate those patients at the greatest risk of dying and for any deficiencies in their care whose correction in the future might permit survival of similar patients. All records were reviewed from the following points: presenting symptoms, drug-ingestion history, initial vital signs, initial hemoglobin and prothrombin time, units of blood transfused, operation done, and identification of bleeding site.

I. Sixty-nine patients survived a bleeding episode. Their records were divided arbitrarily into five groups by the presence or the absence of a demonstrable lesion from which bleeding was thought to have occurred (the number in each group is indicated in parentheses): no identified lesion (22), duodenal ulcer (19), gastric ulcer (6), gastritis (8), esophageal varices (4), esophagitis (2), and miscellaneous sites (8). This division, to reiterate, is arbitrary and perhaps misleading. A source of bleeding other than one apparent from history or radiological examination may be present in 4 to 40% of patients.[1,2]

The largest group of bleeding episodes (22) was one in which the site of bleeding was not identified. The average age of these patients was 51 with a range from 18 to 85 years. There were nearly equal numbers of men and women and eight had previously bled. Fourteen had been taking aspirin or alcohol or both. Eight patients had no recorded history documenting ingestion of any substance provoking gastrointestinal bleeding. Although ten patients had admitting hemoglobin levels below 10 gm% and eleven had pulse rates greater than 100, there were no initial systolic blood pressure readings of less than 100 mmHg recorded. The bleeding site was not identified at the time of operation in the three patients who were explored.

Nineteen bleeding episodes (17 patients) were attributed to duodenal ulcer. The average age of this group was 59 with a range from 22 to 86 years. Men outnumbered women 17 to 2. Nine patients had previously bled. Fourteen patients were taking aspirin or alcohol or both. Of the six patients subsequently operated on, five were ingesting a drug suspected to provoke bleeding, five had previously bled, four had initial hemoglobins less than 10 gm% but only one had an initial systolic blood pressure of less than 100 mmHg. It was clear that the sicker patients with recurrent bleeding were selected for surgery.

There were six bleeding episodes associated with gastric ulcers in individuals, three of each sex, ranging in age from 52 to 90 years. Only two of these patients had previously ingested aspirin, four of them presented with systolic blood pressures less than 100 mmHg, four had hemoglobins less than 10 gm%, all were transfused, and four were operated on.

Eight bleeding episodes were attributed to gastritis identified either by gastroscopy or in one instance by autopsy on a subsequent admission. These patients were all ingesting aspirin or alcohol or both. Four were transfused and none were operated on.

The three smaller groups included four episodes of bleeding esophageal varices, two episodes of bleeding from esophagitis (one associated with an esophageal peptic ulcer), and, in the miscellaneous category, bleeding from mucosal erosions of the appendix, bleeding from lymphangioma of the small bowel, and hematemesis in an infant with a bleeding diathesis presumably induced by Coumadin® in the breast milk of her mother who was being treated for thrombophlebitis.

II. Twenty-three patients subsequently died after presenting with melena or hematemesis. Their records were classified by site of bleeding into five groups: esophageal varices (10), gastritis (2), gastric or duodenal ulcer (4), bleeding with associated malignancy (4), and gastrointestinal bleeding of unknown origin (3).

The largest group of patients had bleeding esophageal varices. Only two of these ten patients both women were not alcoholics. The average age of this group was 55 with a range from 37 to 71 years. All patients had hematemesis, only four had melena, and only three had previously bled. Four of these patients had admitting systolic blood pressures of 100 mmHg or less, and in seven the initial pulse rate was greater than 100. Eight had initial hemoglobin determinations of less than 10 gm%, and in nine the prothrombin time was prolonged to 17 seconds or more. Three patients had a shunt and in two more shunts were attempted but the procedure was not carried out. Eight of these patients died after more than one week of hospitalization. The second group contained only two patients both of whom had been drinking excessively and had liver disease. They were not bleeding from esophageal varices and gastritis was proven to be present. There were four patients with peptic ulcer disease with an average age of 74 and a range from 67 to 85 years. All these patients presented with melena and only one had previously bled. Two of these patients died within 48 hours, one while undergoing a barium enema, and the second from cardiac arrhythmias. The other two died suddenly after a week in the hospital without evidence of rebleeding. The fourth group had bleeding presumed to be from the upper gastrointestinal tract associated with multiple myeloma, bronchogenic carcinoma, and acute myelogenous leukemia. These four all presented with hematemesis and were considered seriously ill from their underlying disease. In only one of these four was the site of bleeding identified, and in that case, a tumor in the stomach was seen at the time of autopsy. The final three patients bled from an unidentified site in the upper gastrointestinal tract. One patient was on large amounts of aspirin for treatment of rheumatoid arthritis, one was taking Dicumarol® and had a markedly prolonged prothrombin time, and one had been drinking excessively.

III. Discussion. The ninety-two admissions of patients with significant gastrointestinal bleeding during this twenty-two month period occurred at the rate of approximately one per week. Twenty-three of these patients died, a mortality rate of 25%. This mortality rate is 2 to 2½ times greater than the 8 to 12% range reported in many other studies.[1,2,3,4] Our mortality rate is not, however, strictly comparable to these other reports. The populations at risk may differ. For instance, British studies have an incidence of bleeding esophageal varices from 1 to 4%,[1,4] whereas, in our population it was 15%. The criteria for inclusion in this study was evidence for melena or hematemesis in the 24 hours before admission, thus, excluding individuals whose bleeding had ceased the day before admission. Our figure may also be spuriously elevated by incomplete chart retrieval. The recovery of all charts of patients with gastrointestinal bleeding is dependent on the physician mentioning gastrointestinal bleeding in the discharge summary and in particular listing it in the diagnoses on the face sheet of the chart. It seems more probable that bleeding at the time of admission might be omitted in the final discharge summary of those patients who survived rather than of those who died. Such charts could not have been selected for this review by the present PAS-MAP system. These speculations can be confirmed or refuted by a subsequent study in which all patients presenting with melena or hematemesis regardless of their duration prior to admission are included and in which the PAS-MAP system is amended to identify patients admitted with gastrointestinal bleeding.

Certain observations of the initial presenting features of these ninety-two patients and their diagnoses are pertinent. Of the fourteen patients presenting with an initial systolic blood pressure less than 100 mmHg seven died (50% mortality). The mortality rate of those with hematemesis (33%) or hematemesis and melena (29%) was twice that of those presenting with melena alone (17%). An initial pulse rate faster than 100 or a hemoglobin level lower than 10 gm% were associated with a slightly greater mortality rate (32% and 36% respectively) than that of the entire group (25%). Patients with a history of previous bleeding were not at a greater risk of dying than those without such a history. Bleeding esophageal varices was a lethal disease. Seventy-one percent of these patients died (10 of 14).

Sixty patients (65%) were ingesting a drug or drugs associated with gastrointestinal bleeding (aspirin, alcohol, anticoagulant, steroid, and indomethacin). On occasion reviewers overlooked a potentially significant drug primarily because the drug was not recognized as containing aspirin (e.g., alka seltzer, empirin, anacin, dristan; there are more than 300 other aspirin-containing compounds). In other cases, the physician had not specifically stated in the chart if the patient had or had not recently taken such drugs. Whether any drug associated with gastrointestinal bleeding is the responsible agent for an individual patient's episode of bleeding may be a moot point, but the effort to identify and to record in the chart the presence or absence of the recent ingestion of such drugs would keep in the physician's mind the possibility of a drug-induced, superficial, radiologically unidentifiable hemorrhagic lesion.

Thirty-two patients were not ingesting any substances associated with gastrointestinal bleeding. Nine died (28%). Of 30 patients who were ingesting aspirin or alcohol, 3 died (10%). The mortality of those drinking alcohol was 32%.

A careful review of the charts of the patients who died did not reveal any shortcomings in their care. The most remarkable feature recognized was that 80% of the patients with bleeding esophageal varices survived for more than a week in the hospital. Ninety percent of these

Continued on Page 259

Meeting Peoples' Health Needs: The Consumers View

Jud Knox*

Although I am probably not a typical consumer nor am I a representative of or a spokesman for consumers, I would like to share some of the information I have gathered which reflects consumer opinion and consumer-felt needs.

I would like to refer to meeting the health needs of people rather than meeting peoples' health needs because I feel that puts the emphasis in health care where it really belongs – on people.

This is a very crucial issue today – too often the provider and the reimburser for health care over-emphasize what looks good for the provider in terms of dollars, equipment or prestige.

Too often the health care industry strives to obtain the most sophisticated technology to service a few persons without ever analyzing the cost/benefit of the program to the whole community. Too often large sums of money are spent to benefit a few when the same sums could be spent to benefit hundreds or thousands of persons.

Too often costly items and products are distributed and charged to consumers under the guise of "good patient care."

Too often institutional providers become so enraptured with their own physical plants and enclosed spheres that they lose sight of the reason for their very existence – meeting the health needs of people.

Blame should be cast not solely on the individual, agency, or institutional provider, for the health planner, the health coordinator, share the guilt.

Too often health planning over-impresses itself with its ability to design so-called systems which squeeze individuals, communities and unique environments into convenient categories and patterns.

Too often health planning confuses its ends with its means and exists only to develop verbose, overtabled, voluminous grant requests.

Too often health planning plans without its most essential goal in mind – meeting the health needs of people.

Health care is, in fact, forgetting people. Medical care delivery is changing so fast, requiring such drastic adaptations, it is under such strenuous pressures from all directions, that those administering and delivering health care are drifting from their prime concern – people.

But the people, the consumer, no longer stands silent. He whispers, he speaks, he shouts – he has to be heard over the din of excuses and dismissals from the health care deliverers. Finally, the provider of medical services cracks the door to let token consumer input sneak in. Sometimes the consumer is actually listened to and, wonder of wonders, sometimes is heeded. In a few cases, channels for consumer input are even established.

As a provider, to listen is not enough. To make channels available for input is not even enough. The provider has the responsibility to actively elicit consumer opinion. This is a continuous searching responsibility. Only with this attitude are people recognized. Only with acceptance of this responsibility can the health needs of people be met.

As a student in Health Care Administration, I have encountered the problem of obtaining consumer input through the development of a thesis that I have chosen on Ambulatory Care Delivery in the Rural Community. The basic research question of the thesis is: How Can the Resources of the Rural Voluntary Hospital Environment be Maximally Organized to Meet Ambulatory Care Needs and Demands of its Service Community?

The methodology of the project is to obtain the bulk information for the formulation of the report directly from the people of the community whether they be providers or consumers. The basic procedures to fulfill this tenet are:

1. Review of other ambulatory plans in other rural environments.
2. Definition of the communities served including geographic boundaries, demographic characteristics, health statistics, and the resource inventory.
3. Examination of the deliverer or providers' concept of health needs.
4. Analysis of consumers' concept of health problems and health needs.
5. The above four components to be combined and analyzed to form the basis for the determinacy of what services should be offered, what delivery mechanism should be developed, what staffing should be utilized, and what physical facilities are actually needed.

Obviously, one of my primary concerns has been the consumers' point of view. It is also the area where I found the greatest void of information. Although only some health statistical information is available in Maine, and even though provider opinion is very fragmented, consumer opinion was by far the scarcest ingredient of all. This indicates that few have fulfilled their responsibility to elicit consumer opinion.

To satisfy the requirements of my thesis, I used two sources for consumer input. Firstly, I analyzed a comprehensive health study that was performed in 1968-1969

*Administrative Resident, Thayer Hospital, Waterville, Maine 04901.

in the Kennebec Valley region of Central Maine. Secondly, I undertook a consumer survey in the same area to obtain indications of certain attitudes.

The 1968-1969 study, performed by Cooper-Levine Associates of California and Systems Development Corporation, included some consumer attitudes as well as other historical information. This sophisticated study entitled, "Systems Analysis Project for Developing a Coordinated Comprehensive Medical Care Program in the Upper Kennebec Valley of Maine" specifically purported to develop "a working model of the rural medical care system and the methodology for using this model to plan for future improvements of the system." Among the specific aspects of the Cooper-Levine study to be examined were:

1. Definition of the existing medical care system.
2. Assessment of health needs of all segments of the population.
3. Factors affecting patient demand.
4. Facilities and agencies services analysis.
5. Consumer characteristics.
6. Analysis of a system's problems – priorities and strategies.
7. Mathematical modeling and systems simulation.
8. Systems management.

The study is quite consumer oriented. A large portion of it is based on interviews with 400 households representing 1,500 individuals.

The second source of consumer view of health care was my own public opinion survey. Obviously a much less sophisticated, non-computerized, narrower study, it was aimed more at felt need or consumer preference rather than past habits or statistical data. My survey consisted of a two-page questionnaire presented by newspaper and forms placed in well-trafficked areas throughout the Kennebec Valley. The objective of the study was to obtain indicators of needs and preferences rather than strictly statistically interpretable information. The study obtained about 500 responses representing 75 professions and vocations from five counties in Central Maine.

I'd like to offer the consumers' view as indicated in the collection of this information and note the comparative value of the surveys. The review will include what the consumer feels are his health problems, what services he desires, how much he values health care, how well he can afford what he wants, and what delivery mechanisms he likes. The more sophisticated Cooper-Levine study examined consumer needs from a historical base looking at what treatments were sought in the past, what disease entities occurred, and the distribution of hospital patients according to disease. The study indicated that treatment was sought most for:

1. Respiratory ailments (15%)
2. Cardiovascular problems (14%)
3. Pregnancies (8%)

The disease occurrences recorded showed that the top three were:

1. Respiratory disorders (21%)
2. Accidents (13%)
3. Neurological difficulties (6%)

The hospital patient distribution survey, also from Cooper-Levine, showed that services utilized most were for the following categories:

1. Gastrointestinal ailments (15%)
2. Respiratory problems (14%)
3. Cardiovascular incidents (10%)

The incidence of respiratory problems stands out in all categories. Cardiovascular is also a substantial indicator. Among those problems always listed in the top ten were gastrointestinal, musculoskeletal.

My own consumer survey took a different perspective in actually asking the consumer, "What are your family's present health problems?" Of those who cited problems, 19.3% indicated disorders of the heart and circulatory system, 12% cited dental problems, 9.2% reported musculoskeletal problems, 8.3% reported payment for health services as their major problem, and 8% indicated that respiratory ailments were their present health difficulties.

In my study I also asked the consumer, "In your opinion, what services do you and your family need most?" Responses indicated that 28.5% requested physicians' services. This was broken down into several smaller categories – general practitioners – 11.4%, physician housecalls – 9.1%, family physicians – 3.6%, and physician availability other than office hours – 3.6%. The next service requested by the consumer most frequently was annual check-ups or physical exam services – 17%. Dental services were requested by 16.6% of the respondents. Twelve and one-tenths percent of the returned questionnaires requested Emergency Room and Outpatient Department services. Again, as in the previous question, 9.1% of the population surveyed deemed they needed financial aid to obtain health services.

In both of the previous questions, dental problems and financial assistance rate in the top five. Incidentally, this was supported by the Cooper-Levine data which indicated that financial barriers existed for 50% of the persons prevented from seeking health care.

There are some more important ramifications of the survey questions requesting consumer needed health services. Of the five most frequently cited, at least three of these, comprising 49.7% of the respondents, had to do with entry or primary source for health care – the physician, Emergency Room and Outpatient Department, and financial assistance for care. This points out the consumers' most basic concern for access to a primary entry point to health services. The consumer expressed desire for annual check-up services may also be an indicator of his interpretation of an entry point – a point of reference before other services are sought.

In anticipation of the concern over physical exams and annual check-up diagnostic procedures, the consumer was also asked to indicate when he had his last physical check-up. Sixty-nine percent indicated they received the service in 1972 or 1971. However, 22% either had such a service in 1969 or before, never or didn't know. It ap-

pears that a good proportion of the respondents are not being regularly screened.

I also asked the consumer if he and his family would participate in a regular yearly medical check-up program if it were made available to him. An overwhelming 93% said yes. Apparently the consumer recognizes the importance of this service.

On the other hand, when asked how much he would be willing to pay for a physical exam or check-up, 68% would pay only ten dollars or less. Eighty percent would pay only $15, while a mere 12% would pay over $20. Very, very few respondents indicated they would pay according to the comprehensiveness of the examination. These responses indicate the low priority of health, at least preventive and diagnostic service. Although the consumer recognizes the importance of the annual check-up and exam, he will be willing or feels he should expend few dollars to realize the service.

We have reviewed the consumer problems, the services he desires and his willingness to pay for some. Let us now look at what the consumer must spend and how he can pay for this. This information was gleaned from the Cooper-Levine study. About 40.5% of the households spent $50 or less in medical bills in 1968-1969. About 32% spent over $150. Of this, 6% spent over $500. How was this paid for?

I don't have a complete answer but I can illustrate an important fact about medical insurance coverage and how it correlates to the income level. The Cooper-Levine study compiled information comparing income level to the proportion of medical expense covered by insurance.

Income Level	*¾ or more expenses covered by insurance*	*Less than one-half medical expenses covered by insurance*
0-$ 1,500	70%	30%
1,501- 3,000	36%	63%
3,001- 6,000	56%	44%
6,001- 9,000	68%	22%
9,001- 12,000	75%	25%
Over $12,000	79%	22%

At the lowest income level, $1,500 or less, the large proportion of the medical bills are cared for for most families. This may indicate that only those with substantial coverage seek medical services at this level or, more probably, that some form of state or Federal assistance covers their medical expenses.

But for the middle income groups of $1,500 to $3,000, and $3,001 to $6,000, the percentage of the population with one-half or less of costs covered is large. The percentage of those having three-quarters or more of their medical expenses covered by insurance rises with each income level from 36% for incomes of $1,501-$3,000 to 79% for incomes over $12,000. These figures reinforce the proposition that a primary barrier to care is the cost of services which middle, lower income families cannot afford to cover by insurance.

Preference of health care services and delivery mechanisms was a concern of both studies. The Cooper-Levine study suggested that 30% of the consumers sought their physician, dentist or eye doctor for past medical treatments. About 25% of the same population sought medical treatment at a hospital, clinic or Emergency Room. My personal study, which phrased the question a little differently, supports the Cooper-Levine findings. When asked if the consumer were free to choose, where would he prefer to receive health services, 41% of the consumers chose the regular doctor's office. Close to that was 37% who indicated they would seek a hospital-based clinic source of service. This compares relatively closely with the Cooper-Levine ratios of 30% and 25% respectively.

In addition, my consumer survey indicated that only 12% of the consumers prefer a doctor's office-based clinic, 6% wish to attend regularly scheduled periodic clinics based in their area, and only 4% would prefer services delivered through a mobile health unit. It is quite probable that many of the respondents did not understand all the alternatives for the delivery of care. Regardless, it indicates that if health services are to be delivered through other means than the traditional doctor's office or hospital clinic, substantial marketing efforts have to be undertaken for public education.

I realize I have presented a quantity of facts and ratios which are difficult to assimilate, no less correlate. Let me, therefore, suggest some of my conclusions drawn from this data.

1. The consumers' most often indicated problems and needs basically reflect his inability to enter the traditional medical delivery mechanisms. The consumer wants more physician availability and accessibility – probably the consumers' concept of what he feels means more health care availability. The consumer also wants financial help with payment for health services. The studies indicate that the dollar is the greatest barrier to health care services for many.
2. The consumer recognizes the importance of health services – at least yearly exams and medical check-ups. Even though a large portion don't receive these check-ups presently, an extremely large majority would participate in a program offering them.
3. The consumer is not yet willing or able to expend much for preventive or diagnostic care even those he recognizes as valuable.
4. Although the traditional deliverer of care – the physician's office – is most favored by the consumer, the latter is presently leaning heavily toward receipt of services in a clinic setting.
5. Lastly, consumer input is easily obtained. Don't look for individuals or groups to represent the consumer, don't try to indentify the typical consumer.

If you are sincerely interested in consumer input, simply ask. You don't need sophisticated, mathematical models or intricate computerized systems. All you need is the desire, the courage and the strength to approach the consumer.

Experience With the Structured Progress Note in Community Cancer Care*

FRANCIS J. O'CONNOR, M.D., FACR**

To provide through continuing education a quality of health care to all persons of the community and to evolve new methods for management of cancer problems and comprehensive care in the community are goals of the Maine Institute of Continuing Medical Education at the Augusta General Hospital. The means to the solution of increasingly complex problems is through the Weed *P*roblem-*O*riented *M*edical *R*ecord with the aid of well-trained paramedical assistants.

It is not often that one finds in medical literature the presence of so broadly valuable a problem-solving system for health care as that devised by Dr. Lawrence Weed in the problem-oriented medical record that guides and teaches. Briefly the philosophy of the Weed POMR System involves obtaining on all patients a *broad* data base, the listing of *all* problems, a *plan* for *each problem* and the *followup* (the structured progress note).

A basic tool in learning the Weed POMR System is the progress note. Just as the careful, well-executed "follow through" of the basketball player or any athlete makes a good percentage of successful scores, the compulsively prepared structured progress note is the means to the best percentage for successful comprehensive health care.

From experience in the comprehensive community cancer care model at the Augusta General Hospital, developed through the Maine Institute of Continuing Medical Education during the past three years, it has become increasingly clear that a structured progress note can be well learned and executed by every member of the Health Care Team from the beginning x-ray student technician directly out of high school to the radiotherapy technician and including the medical student, the physician and nurse, the medical physicist, the social worker and the medical consultant.

The structured progress note is now being accepted broadly across the country in many medical centers, in physician associate and MEDEX programs and in medical schools.

The admission note on a problem takes the form of the initial progress note. The consultant's report ideally follows the same pattern. The hospital discharge note summarizes briefly the problems solved, emphasizes the unsolved problems, and the plans for continued followup using the pattern of the structured progress note.

To learn the Weed POMR System of Health Care, one should learn well to prepare the structured progress note and practice constantly.

The progress note should always be dated, numbered, the problem titled and in some cases even the time may be needed for sudden, acute problems.

The first paragraph deals directly with the patient's problem, the subjective note *Sx.* This subjective note is often neglected and the patient may well provide a precise statement of his own problem. A list of key questions regarding particular problems may be compiled especially to help the student or technician in obtaining a history. For example, if patient has been referred for radiotherapy for a bronchogenic carcinoma, the technician will ask regarding shortness of breath, chest pain, cough, sputum, and bleeding.

In the second paragraph all the objective findings, *Obj.* related to the patient's problem are recorded. In the case of a patient with a cancer problem his initial note should include the documented report of the pathology, the surgical description of the malignancy, the related physical findings, especially a description of the entire lymphatic system (head to toe), the laboratory findings, etc. This initial progress note becomes the basis for the radiotherapy consultant's report.

The third paragraph is the place for an assessment, *Asses,* an impression, a conclusion, or a discussion of the problem. This may be a statement of prognosis and there may be significant data available for a specific diagnosis and staging of a malignancy. Using the TNM system often provides some idea of prognosis from available experience. For the most part, this assessment is the job of a physician or of a nurse. Many times the trained radiotherapy technician may provide a good and acceptable assessment in the progress note. Our therapy technicians now are doing a reliable job with Staging. The Radiotherapy Oncologist must consider the patient's cancer problem in light of all the other problems. The assessment is not an invariable part of the progress note since there may be too little data for assessment.

The fourth paragraph is the *plan* which is also deliberately structured including what *further data* is necessary to rule out the different causes of the problem presented. The *treatment* to be provided for the problem is listed and may be *nonspecific* and symptomatic or call for a *specific course of action.* The plan must include *patient education,* a constantly neglected portion of patient care. Here is described what the patient has been told. The plan part of the structured progress note may be more completely filled out by the physician, nurse or associate. Our radiotherapy technicians are encouraged to go as far as they are able with the progress note often receiving some guidance as to what objective parameters should be measured. The plan by the technician may constitute

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only a note to inform the physician of the up-to-date information on the problem.

In summary, the complete structured progress note has been well described as S.O.A.P. ing the patient's problem (*S*ubjective, *O*bjective, *A*ssessment and *P*lan.)

The great value of the structured progress note is the opportunity to have the students directly participating in patient care, being able to teach what is the problem, how to question and record subjective information and gradually the student developing knowledge of recording related objective information and ultimately "the joy of discovery" as related problems may be fitted together to provide a diagnosis. No successive progress note may be made before previous notes have been reviewed. Immediately it must be determined whether the plans for further data collection have been followed and whether there is need for adjustment in the treatment plan because of the new information.

New information is recorded under the progress notes as an objective finding.

The structured progress note is similar to a rocket guidance system where data is returned and adjustment made in the course and goal of the rocket flight. The carefully followed structured progress note is the guidance system of patient care. Returned data, the "feedback loop," allows for adjustment in the course and goal of patient care.

The physician's orders also should be numbered and titled to help the nurse and others in a health care team to understand what problem the different parts of the treatments plan are designed to manage.

The student, the technician, the nurse, the medical student, etc. in the community cancer care service is encouraged to list problems at their level of understanding and it may be purely a listing of a symptom, an abnormal physical finding, an abnormal laboratory report, etc. It shortly becomes clear that the structured progress note becomes a means of evaluating performance in patient care. The student may be evaluated for thoroughness, efficiency, dependability, and the logical approach to problem solution becomes apparent. Experience during the past 2 summers, during which 15 medical and premedical students have variably spent time in our comprehensive cancer care model from days to 12 weeks, has provided the opportunity to be able to conclude that this approach to patient health care involving the premedical student, especially provides extremely valuable information on what can be expected of the performance of the student when he becomes a medical student and how in fact the medical student might be expected to perform when he becomes a physician. It has not been surprising to find that some students apparently academically successful and well along in medical school are nonperformers. Some premedical students at the end of 10 weeks have demonstrated better ability in a patient care system in all categories, thoroughness, efficiency, dependability, and logic.

From the simple use of the structured progress note, it becomes obvious that a significant amount of the data base is needed if an attempt is made to list all the patient's problems.

Our experience indicates it is idle to argue what should be included in the data base. It is best to pick a *broad data base* and use it on all patients with some breakdown by age and sex.

In the community comprehensive cancer care model, our data base is as follows. We use an automated history which provides our past history and systems review in depth including a patient profile, social information, psychological questioning and an index of depression questionnaire. We presently are also evaluating a new automated history available via computer terminal with the patient directly supplying the input and the immediate availability of a high speed printout (since August 1971).

We use a multi-phasic health screening unit, the Augusta Health Testing Unit, within the hospital to provide a significant portion of our routine data base. The physical testing includes height, weight, and percentage of variation from normal, pulse, bilateral blood pressure, upper extremities, eye testing including extra ocular muscle, acuity, ocular tension (applanator) and checked by Schiotz if abnormal, also stereognosis and color vision are also checked. There is gross examination of ears and tympanum and audiometry checked by Weber's test if abnormal. There is gross examination of mouth, tongue and oropharynx. In the neck there is check for carotid bruit, lymph nodes and thyroid enlargement. Chest examination includes vital capacity, timed vital capacity and peak flow rate recorded as percent predicted. An EKG and chest x-ray are routinely available. Neuromuscular testing includes cranial nerves II-XI (Except X), equilibrium (Romberg with eyes closed) and Babinski if the Romberg is abnormal. The long tracts are examined for vibratory sense and the dorsal-plantar flexors are checked and, if abnormal, Deep Tendons Reflexes ankle jerk and knee jerk are recorded. Examination of the extremity includes gross examination for deformity, pretibial edema, and the pulses are checked bilaterally (radial, posterior tibial, dorsalis pedis) and notation is made if varices are present.

The routine laboratory information obtained by the *A*ugusta *H*ealth *T*esting *U*nit includes HGB, WBC, Urinalysis, Fasting Blood Sugar, BUN, Cholesterol, Uric Acid, total protein, SGOT, and alkaline phospatase.

A comprehensive care type of flow sheet has been developed covering the usual parameters for most patients who have malignant disease. The flow sheet would serve very usefully for any ambulatory care setting. Routinely a flow sheet is prepared on all patients receiving radiotherapy and for all consultation problems referred to the Department of Radiology.

As part of our routine data base, an abstract of all previous hospitalizations is made using a physiological testing data sheet designed by Drs. Cross and Bjorn of the PROMIS Lab, Hampden Highlands, Maine. Information

from the AHTU and additional physical examination notes are recorded using this abstraction form. The physical examination is not otherwise typed and recorded unless the patient is hospitalized. The physical findings are then recorded under the objective note of different problems in the structured progress note.

It is not within the province or the intent of our comprehensive cancer care model to pursue the diagnosis and management of all problems, but rather to manage the prime problem of carcinoma and be assured that we are not *"treating out of context"* which appears to be *one of the most common errors* we encounter in cancer management. Our team of radiotherapy technicians act as coordinators of patient care between the radiotherapist and the referring physician. This has become a very reassuring experience for the patient to know that he would be able to get through at any time to technician, radiologist or physician concerning his problem with the trained radiotherapy technician functioning as coordinator and assuring followup by way of the structured progress note.

Naturally many incidental problems may arise during the course of radiotherapy. For every problem listed there is an individual numbered, titled, structured progress note. We have always used numbers although it may be a valuable approach on initial temporary or suspected transient problems to use a lettering system, problems A, B, C, etc., in addition to the numbering system for well-defined diagnosis or problems of some duration. When the relationship of problems becomes obvious, they may be grouped under one problem number. We have used the designation 1A, 1B, 1C, etc., if specific separate problems are present but related; for example, the patient with #1A Carcinoma of the Breast, #1B Metastatic lesion to the lumber spine and #1C Recurrent ulcerated neoplastic lesions of anterior chest wall.

Most of our patients are ambulatory and a final problem list is prepared at the termination of therapy (4-8 weeks). It has become our *policy* in this *community cancer service* to follow the patient indefinitely. The keeping of a well-ordered, problem-oriented medical record has made it very easy to pick up a patient with a new problem and with a good baseline of information be able to make valid assessments in patient management in much less time.

Because of the systematized presentation of the POMR including the problem list, the plans for each problem through a structured progress note, the availability of a flow sheet, and an abstraction sheet with physiological data the means for ready review and auditing is available. Ordinarily on review of our cancer management record one can obtain a grasp of the patient's problems, management and current status within approximately 90 seconds. A minimum of 8 minutes has been required on the comparable source oriented record in our hospital to determine the major problem. Weekly a multiple disciplinary cancer management review is conducted at Wednesday Noon Luncheon Meetings. Between 30 to 40 cases are reviewed weekly and further input to patient care is provided through other medical disciplines, pathology, medical oncology, surgery, ob-gyn., radiology, medical physics, nursing service, social service, and tumor registry as well as a continuing education program for the therapy technicians, medical students, etc. directly associated with the ongoing care of the patient.

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Fall Meeting of the M.M.A. House of Delegates

Sunday, December 10, 1972

St. Joseph Hospital, Bangor, Maine

12:30 P.M. — Registration; 1:00 P.M. — Dinner; 2:00 P.M. — Meeting

10:00 A.M. — Meeting of the Executive Committee

Rural Medicine: Cancer

ROWLAND B. FRENCH, M.D.

This is a review of cancer cases treated by the author, and an attempt to evaluate what can be done for cancer patients in an isolated rural area to improve their overall care. The number of cases is limited so that percentages mean relatively little. The earlier cases in the series were operated on by the author. The later cases were operated elsewhere, a few as far away as 400 miles, at the desire of the patient for a particular facility.

There were 44 patients with carcinoma of the skin over a period of 15 years, the majority of lesions occurring on the face and ear lobes. Twenty of these were basal cell carcinomas. One arose in an epidermoid cyst, and another large squamous cell carcinoma appeared clinically like a group of wens in a patient with multiple wens. All except four lesions were excised by the author. Two of these required repeated operations which emphasized that even on the face, where tissue is at a premium, a good margin of normal tissue is essential. Definition of what a "good margin" of normal tissue means has been discussed elsewhere. One patient with a very large carcinoma, involving most of the side of the face when first seen, was treated elsewhere by radiation with good result. One, involving the side of the nose and the nasal septum, was resected elsewhere with a good result. Several carcinomas involving the skin of the nose were removed by the author, and the defect closed by a full thickness graft from the neck. Several patients had multiple cancers arising several years apart. All did well except for one patient with advanced cancer involving the angle at the junction of cheek and ala of the nose which recurred and progressed. This patient also had had herpes zoster seven months earlier. This case particularly emphasized the need for expert anaesthesia to facilitate the extensive surgery necessary.

Three patients, who had carcinoma of the labia, are not included with the other "surface" cancers. One had had a radical vulvectomy sixteen years before, with a local recurrence which was excised by the author, and had further operation elsewhere at which time no tumor could be found. The cancer recurred again three years later. Another patient presented with cystitis and backache and some labial itching and had both carcinoma in situ of the labia and of the cervix, with a pap smear first reported negative and then later to positive. The third case, who had a cancer of the uterus treated seven years before, noted a sore spot on the labia and has done well since vulvectomy performed elsewhere. Both the last cases are well three and twelve years after last surgery.

Malignant melanoma was not included in the "surface" cancer group. There were two cases of malignant melanoma: one occurring during pregnancy and excised widely by the author, and subsequently referred elsewhere where a wider area was removed and groin dissection performed with no evidence of the tumor. She had been well for twelve years except for a fairly disabling edema of the left leg following the groin dissection. The other case was referred elsewhere for treatment, and has been living three years with no evidence of recurrence. This would seem to emphasize that moles which are enlarging or darkening may do well if treated early and with great respect.

Two patients had cancer of the lip, both resected by the author, each dying about four years later of other causes with no evidence of recurrence. One developed tuberculosis and herpes zoster.

The next most common site of cancer encountered in this geographical area with a population of approximately 4,000 was cancer of the cervix; a total of 22 cases. These were found by pap smears, Schiller's test, and biopsy; often in asymptomatic patients. The patients often had had negative pap smears one or two years earlier. Five patients had a history of bothersome vaginal discharge, six had some spotting between periods, and one only had bleeding with intercourse. However, when early symptoms had been ignored, as was evidenced in three cases of vaginal bleeding for one year, then the cancer had spread beyond the cervix. Of these three advanced cases, one was treated by x-ray, and one with radium; each survived one year, and one refused treatment and was lost to follow-up. One early case had a Class 2 pap smear, but kept spotting, and conization revealed a carcinoma in situ. Another had a normal smear but bleeding made the smear unsatisfactory. A second smear was positive in an asymptomatic patient, and she was sent to one specialist who did a D&C and multiple biopsies and sent her home. She then had a Class I pap smear, but was sent to another doctor six months later who did a conization and found carcinoma, emphasizing the usefulness of conization in suspicious cases. Schiller's test and biopsies still proved valuable diagnosis adjuncts.

All of the carcinoma in situ cases were treated by simple hysterectomy, four of these by the author 8-10 years ago and 12 were operated elsewhere, with no evidence of recurrence in either group. Two other cases of carcinoma in situ refused hysterectomy and had conization only, followed by repeated pap smears which have remained negative in one, the other patient has been lost to follow-up. One patient had had a previous partial hysterectomy and subsequently had bleeding from the cervical stump. She was found to have a carcinoma and was treated with radium. Cases of this type make one question the value of a partial hysterectomy and suggest hysterectomies should always be complete. The remaining patient had been treated with radiation years ago with no recurrence, but had a ureteral stenosis, possibly due to x-ray therapy.

The large bowel was the third most common site for

cancer in this series. There were 11 patients with cancer of the large bowel. Five of these had rectal bleeding, two had some diarrhea and two had had constipation. Two patients had epigastric distress and bloating as their only symptoms, but turned out to have carcinoma of the sigmoid, so that one could be misled as to the location of the lesion unless one did both a gastrointestinal series and a barium enema. One case had epigastric distress and had an ulcer by x-ray, and also had a sigmoid carcinoma. Only four patients had a mass palpable by rectal examination or by sigmoidoscopy. Two patients had diverticulitis previously diagnosed by x-ray. One later developed a mass which at operation revealed carcinoma. The other patient with continued symptoms had repeated x-rays which only revealed diverticulitis, but later a rectal cancer was found which had already metastasized, and the patient died about one year later.

Two patients with carcinoma of the rectum had abdominal perineal resections performed by the author. One of these was very obese and had difficulty with the stoma, with a draining fistula, and required a transverse colostomy. Twelve years later she died of cancer of the lung, possibly metastatic. The other patient is alive nine years later but had a recent herniation of the bowel around the stoma which required operative repair.

Another patient whose only symptom was a palpable epigastric mass had cancer of the transverse colon, which was resected by the author, and the patient has had no evidence of recurrence nine years later. Two of the remaining patients had carcinoma of the rectum diagnosed by the author, and referred elsewhere for operation, both are doing well; one six and one ten years after surgery. Three other cases had carcinoma of the sigmoid and all were resected elsewhere and all are doing well, one six, one four and one two years after surgery. One patient had a carcinomatous polyp, operated elsewhere with no recurrence in two years. Another patient who had an adenocarcinoma of the splenic flexure, presented with a chief complaint of tarry stools; this case was operated elsewhere. One case had a carcinoid tumor of the small bowel with symptoms of constipation and bloody stools of one week duration. Another patient had a palpable rectal mass – had diarrhea and rectal bleeding which proved to be a villous adenoma and had a resection elsewhere. Some cancers of the bowel can be found fairly early by prompt rectal examinations and sigmoidoscopy, but often lesions are above this area.

Many persons in rural areas are elderly and cannot or will not travel far for diagnostic x-rays. The ready availability of barium studies of stomach and bowel at nearby x-ray facilities would add materially to the chances of finding even more early lesions. Cancer operations are best done by well-trained surgeons, with well-trained anaesthesia personnel, and where blood banks are available. One gets the impression that experience is a poor teacher in surgery unless founded on a good training background; one only makes the same mistakes over and over to the detriment of the patient.

Fourth in order of incidence in this series was cancer of the female breast. There were 14 patients with cancer of the breast. The suspicious lumps were first found by the patients. Five of these were operated on by the author (radical mastectomies). In the group operated locally, one patient is alive ten years later with no sign of recurrence and one died of metastasis in 27 months. One patient died after one year with severe hypertension and cerebral hemorrhage, and one patient died after one year with heart failure and uremia. A fifth patient who had had a large lesion for three months with no evidence of spread, died of metastasis five months after operation. This was a lymphosarcoma, and the patient had previous x-ray therapy, years before, for carcinoma of the other breast. Perhaps this therapy was related to the development of the lymphosarcoma. Three cases were operated elsewhere with no evidence of recurrence six to fourteen years later. One of these presented with a slight nipple discharge and slight ulceration about the nipple. Another had an advanced carcinoma, and had been afraid for seven months to see a doctor. She died three months later. Five patients had been operated elsewhere when first seen by me, all with widespread metastasis; one had aching in her hip and leg as her only symptom.

There were also two patients who presented with lumps that turned out to be benign fibroadenomas. These were removed by the author by a circumareola incision and had a good result. There was one patient with a large cystosarcoma phylloides tumor which was removed by simple mastectomy by the author with no recurrence twelve years later.

Fifth in this series was cancer of the lung. There were ten cases of carcinoma of the lung. One patient presented with hemoptysis, one patient had back pain as the only symptom, three had persistent coughs and four had dyspnea. One case had persistent pain in the left chest, another had only chest discomfort. One had hip pain and then had cerebral metastasis as the first indication of the lung lesion. All of these died in one year except one patient who lived three years. He had tuberculosis and carcinoma! One case was treated at a large out-of-state hospital, x-ray showed only pulmonary edema, and four months later x-ray here showed carcinoma, and the patient died one month later. One patient had extensive, expensive chemotherapy which was of no help, and which even seemed to make the patient more miserable. This proved to be a financial burden on the patient and relatives, and makes one wonder if one should not be a bit more cautious in advising palliative chemotherapy. If there is even a remote chance that tobacco is related to lung cancer, it would seem that the use of tobacco should be even more actively condemned, and the evidence seems far more certain that it is directly involved in its cause. Among these patients, most, as usual were heavy smokers.

Cancer of the prostate was sixth in this series. There were nine patients with carcinoma of the prostate, all operated elsewhere and referred mostly because of urinary obstruction. One case had hematuria as the main

symptom, and one had had repeated urinary tract infections. Unfortunately, only one patient was diagnosed early enough for radical removal. Upon the finding of a prostatic nodule, this case was referred to a urologist who sent him home. He was then referred to another urologist who performed the resection, and the patient is doing well five years later. The rest of these cases lived three to six years after surgery. Probably the idea of frequent rectal examinations which might reveal many earlier cases is good, but whether this really is worthwhile in terms of long-term results seems to be somewhat indefinite.

Seventh in order of incidence in this series was cancer of the urinary bladder. There were four cases of bladder tumors which were all operated on elsewhere. Each was sent at the onset of hematuria, and in one case only microscopic hematuria, and each is doing well three to ten years later. It would seem if hematuria is fully investigated early, a fairly good outlook may be possible.

In our area, multiple myeloma was eighth on the list of malignancies. There were three cases of multiple myeloma all living within a two-block area but occurring several years apart. One had severe albuminuria but showed no definite Bence Jones protein. Because of weakness and chest pains, these patients were all sent elsewhere where the diagnosis was made and treatment instituted. The cases lived about three to five months after chemotherapy was started.

Well down the list, ninth, was cancer of the stomach. Four patients had stomach cancer. One of these had symptoms of indigestion for sixteen years and when operated upon by the author was found to have advanced Hodgkins sarcoma of the stomach. Another had a gastroenterostomy performed by the author for an inoperable completely obstructing carcinoma of the distal stomach. A third patient had an inoperable gastric neoplasm when first seen, and a fourth was recently referred elsewhere with weight loss, anemia and easy fatigue. A gastrectomy was performed but it is too early for evaluation. The patient with the gastroenterostomy survived six months and the other two only a few weeks.

Tenth in order of incidence was cancer of the esophagus. There were three patients with carcinoma of the esophagus, with symptoms of difficult swallowing, lasting from four to eight weeks. One patient had a sore throat and upper respiratory infection for six weeks with an enlarged cervical gland which proved to be metastatic carcinoma; the primary was found in the esophagus. Another case had had herpes zoster four years before. All of these cases proved to be inoperable.

Also tenth in the order of incidence was cancer of the thyroid gland. There were three cases with carcinoma of the thyroid, all operated upon elsewhere. One occurring in a non-enlarging solitary nodule and referred elsewhere is doing well twelve years later. One was seen by me only after it had grown and spread. This patient had been operated on fifteen years previously for goiter and was hypothyroid, which possibly was related to causing the neoplasm. One patient was diagnosed as carcinoma simplex with regional lymph node metastasis and treated by operation prior to being seen by me with no evidence of recurrence in 12 years and only followed by me.

There were two cases of cancer of the ovary. One of these patients had bilateral pseudomucinous cystadenomas which developed metastasis six years after operation. This patient originally had a cystocele of one months' duration as her only symptom. The other case presented with abdominal pain and weight loss, and at operation elsewhere was found to have widespread carcinomatosis from adenocarcinoma of the right ovary.

One patient who had adenocarcinoma of the parotid, was seen and treated elsewhere, and only followed by me, appeared to be doing well, except for being almost incapacitated for years by a nervous reaction after being told that she might have a recurrence, but proved not to have.

There was one patient with a brain tumor which was far advanced and operated on elsewhere with continued difficulty.

There was one patient with leiomyosarcoma of the uterus operated upon by the author with no recurrence in eight years. One patient had a fibromyxosarcoma of the leg which did recur following operation. One patient had a giant follicle lymphoma which responded fairly well to chemotherapy for two years. Another elderly patient had a probable chondrosarcoma of the sternum which has slowly increased over about a five-year period.

There were fourteen patients with advanced cancer besides the ones listed under individual areas. One of these had been treated at a large hospital for phlebitis, and five months later was referred elsewhere where a large inoperable retroperitoneal tumor was found. Another patient noted a lump in the groin which proved to be metastatic carcinoma, the primary was undiscovered. Treatment by x-ray therapy resulted in marked sloughing of tissues, and the patient died of hemorrhage four months later. One patient had pain in his left side, jaundice and a metastatic lump in his neck which proved to be a squamous cell carcinoma, primary site unknown, and patient died two months later. Another patient first noted a lump in the right axilla which proved to be metastatic carcinoma; no primary found and patient died two months later. Another patient had constipation of six weeks' duration, and rectal examination revealed a mass which proved to be metastatic carcinoma. One patient first noted jaundice of one weeks' duration and had an epigastric mass and inoperable pancreatic neoplasm. Another first noted abdominal distention which proved to be ascites and carcinomatosis. Another had dyspnea as an only symptom due to metastatic pleural effusion. Two others had obstructive symptoms with widespread carcinoma at operation. Another patient had had Paget's disease for years, and then had rectal bleeding for one day and was found to have a large abdominal mass. Two others had carcinomatosis following operation elsewhere at some previous time. Another had vague abdominal distress for several weeks and had carcinomatosis. Another patient had

abdominal pains and jaundice and also had carcinomatosis. Most of these patients were referred elsewhere and had exploratory operations and only survived a brief period of time. Even though metastases gave the first symptom in the majority of this group, in some, particularly in elderly patients, especially with vague abdominal symptoms, the availability of barium studies played some role. If barium x-ray studies were very readily available to the patient and doctor, it would seem to give the greatest opportunity to make this advanced cancer group smaller.

My interest in cancer has been over an approximately twenty-five year period, starting with a belief that a change in the DNA molecule was involved in carcinogenesis, and hoping to control cancer through immune mechanisms. One relationship, I believe, possibly promising is the correlation of the absorption spectrum of carcinogenic compounds to that of primidines in the DNA molecule. At the moment this does not seem to be considered very useful, but the numerous reports are based on different correlations than that which I seemed to find twenty years ago, namely, the first absorption peak of the compound seemed to overlay that of primidines, and as far as I can determine not correlated previously. The Miller's in Wisconsin have shown that there is binding between carcinogens and protein, and several authors have shown that carcinogens have powerful bonding, so that the requirements for resonant photon transfer would seem possibly met. The recent work at this same wave length with photons suggests that a possible mechanism exists for carcinogenesis.

TABLE (Taken from numerous references and available on request)

	Alpha wave in angstom units	*Carcinogenisity*
1, 2 benzanthracene	254	0
1 methyl benzanthracene	254	0
4 methyl benzanthracene	258	+
5 methyl benzanthracene	262	++
8 methyl benzanthracene	259	+
9 methyl benzanthracene	258	++
10 methyl benzanthracene	257	+++
5, 8 dimethyl benzanthracene	262	0
5, 10 dimethyl benzanthracene	265	++++
8, 10 dimethyl benzanthracene	262	+++
9, 10 dimethyl benzanthracene	262	++++
7, 12 dimethyl benzanthracene	?	+++
1, 2, 5, 6 dibenzanthracene	274	++
1, 2, 7, 8 dibenzanthracene	258	+
22 methylcholanthrene	263	++++
5 methyl, 1, 2 benzanthrene	262.5	++
9, 10 dimethyl, 1, 2 benzanthrene	262.5	++++
1 methyl phenanthrene	248	0
3 methyl phenanthrene	252	0
4 methyl phenanthrene	250	0
9 methyl phenanthrene	253	0
3, 4 benzphenanthrene	262	+++
5, 6 dihydrochrysene	256	0
chrysene	258	+
1 methyl chrysene	265 (approx)	+++
5 methyl chrysene	?	++
3, 4 benzpyrene (1st significant band not alpha band)	267.5	++++

Photons around the wave length of 265 angstrom units from any source can cause cancer. Photons can be transmitted under certain circumstances from one compound to another by resonant transfers. The donor compounds in carcinogens have high energy potentials, close approximation as shown by protein binding, and overlapping resonant spectra, at least to some extent, if one compares carcinogenisity of compounds in the above table to a curve from about 257 to 274 angstroms with apex about 265 angstrom.

In summary, I believe cancer cases should be cared for in regional hospitals only if a well-trained surgical team is available, well-trained anaesthesia personnel and blood banks for easy availability of blood and a x-ray diagnostic set-up, particularly for barium studies. Otherwise, I believe it better for the patient to be sent to a center where these are available. If cancer operations were limited to being done by only one or two well-trained surgeons in an area, the surgeon could operate frequently enough to do a good job; but if operations were done by all practitioners, no one person operates frequently enough to keep doing well. I believe that it is in the best interest of the patient that only a well-trained surgeon be operating on them. It has been often mentioned that it is the doctor's job to do no harm, and that would seem to mean to do best for the patient's welfare.

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Diarrhea in an ileostomy patient may indicate obstruction, and this possibility should be considered before administering Pro-Banthine.

Precautions: Since varying degrees of urinary hesitancy may be evidenced by elderly males with prostatic hypertrophy, such patients should be advised to micturate at the time of taking the medication.

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Adverse Reactions: Varying degrees of drying of salivary secretions may occur as well as mydriasis and blurred vision. In addition the following adverse reactions have been reported: nervousness, drowsiness, dizziness, insomnia, headache, loss of the sense of taste, nausea, vomiting, constipation, impotence and allergic dermatitis.

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Peer Review Impact Concepts

Darwin L. Hatheway

Introduction

The impact of federal monetary policy is observed by monitoring the gross national product and several other economic indicators.

The impact of case management is observed by monitoring patient temperature and selected other vital signs.

The impact of peer review is not observed because impact indicators are not monitored. There is no monitoring because satisfactory indicators have not been convincingly identified.

A set of peer review impact indicators is proposed. The method used to identify the set is briefly described.

This is one of several essays about peer review. The purpose of these essays is to help the physicians establish a responsive and orderly foundation for the critical examination and constructive improvement of their peer review system.

Summary

The impact of peer review must be observed to determine whether physician time spent participating in it yields a maximum pay-off relative to other uses of that time. There are several other reasons to monitor the impact of any peer review process, including:

1. To assure that the total peer review resources allocation and consumption is justified.
2. To reassure the public that the physicians are, as a profession, actively seeking and providing the optimum combination of health service quality and quantity deliverable relative to the social and economic costs involved, on a community by community basis.
3. To assure that peer review processes are operated constructively.
4. To enable a reversal in the trend of malpractice premiums.

The probable consequences of not accomplishing these implied objectives have been adequately expressed and implied in Congressional hearings and debates about health service legislation.

Some effort has been made to monitor and evaluate peer review processes. The results of such studies have been reported in the following basic categories of information:

- Opinion. Qualitative estimates of physician involvement, and the like.
- Activity. Quantitative estimates of the percentage of records reviewed and discrepancies detected, and the like.

While such information is (potentially) useful, it is not information about impact.

It is valid to suppose that high physician enthusiasm and high record review percentage are closely associated with high peer review impact. But it is not valid to assume that enthusiasm and record review percent are equivalent to impact measures. Measuring the speed of a Lotus II Ford and the reflexes of the driver are no substitute for counting the winnings at the Indianapolis 500.

The prize money awarded at the end of the race to each car-driver team is a direct measurement of each team's impact.* Since the point of peer review is for each and every physician and patient to be a winner, it is little wonder that there is no obvious measure of impact. In the absence of obvious measures, something must be done to deduce the specific nature of what can be monitored and observed as indicating peer review impact. (Only then is it reasonable to devise a monitoring process.)

Something has been done; this problem area has been investigated using the Theory of Effectiveness as the interpretive tool. The result is a set of three measurements which can be jointly used as an indicator of peer review impact:

Standards Approximation Ratio (SAR), the extent to which the observed norms of practice for a provider peer group correspond to the standards of practice. (Value range: zero to one.)

Medical Injury Complement (MIC), the complement of the number of medical injuries per thousand patients for a provider peer group. (Value range: zero to one thousand.)

Medical Injury Randomness Coefficient (MIRC), the degree to which the distribution of medical injuries of a provider peer group corresponds to a random distribution among the members of the group. (Value range: zero to one.)

Each measure has been defined such that increasing values indicate increasing impact.

The way the Theory of Effectiveness was used to deduce these measures is described in the "Peer Review Effectiveness" section. The section concludes with a technique for reducing the triplet of values for a specific peer review system into a single impact indicator value. Such a reduction facilitates the comparative analysis of various operating systems.

Since peer review is a very complex real world problem, it is possible that there are other measures for expressing peer review impact which are better suited to this purpose than the ones proposed; thus this area of concern should continue to be explored. Concomitantly, the above measures are to be regarded as a proposed im-

22 Sewall Street, Augusta, Maine 04330.

*See Hatry, 1970, for further discussion of the distinction between performance and impact.

pact description schema available for use by any peer review organization (contingent on the concurrence of the participating physicians).

Early in this section some of the reasons for measuring peer review impact were stated. They can all be summarized into one reason: to identify whether the impact of the existing design is the maximum possible relative to the resources consumption involved. But this is only one of two fundamental reasons there is a need for explicit measure concepts. The other reason is that such concepts must be used as a basis for estimating the impact of proposed peer review system designs.

As suggested by the AMA's *Peer Review Manual,* most physicians participate in some style of peer review. As explained in the "Current Peer Review" section, the most common styles of structured peer review process have defects. If the design chosen as the replacement for the defective design is to be the one which will provide the most constructive impact relative to the resource consumption involved, then explicit specific impact measure concepts must be part of the design selection process. The section concludes with a brief explanation of the origin of this requirement.

This article only deals with the idea of what can be measured as an indication of peer review impact. Once there is agreement as to what is to be measured and why, the problem of actually accomplishing the measurements can be expeditiously and efficiently solved.

Current Peer Review

At present there are only a few basic styles of peer review process in operation. The two structured styles most frequently encountered may be briefly described as:

Stochastic. Each record in a sample of medical records is (intensively) reviewed. The sample of records is usually obtained by choosing every N^{th} record of the cases discharged during a delimited time period; occasionally a random number selection process is used. A common variation is to limit the selection to cases with certain primary diagnoses.

Utilization. Each record in a sample of records is intensively reviewed. The records in the sample are obtained through a multitude of one-dimensional comparisons on record content for all cases discharged in a delimited time period. (Example: A maximum length-of-stay criterion is set for appendectomies; then the record for any case exceeding the criterion becomes a candidate for intensive review.) The comparisons are usually performed by a computer program operating on a manually prepared case abstract. Two common variations are to select from a limited set of primary diagnoses and to select from a limited set of physicians. (Since the mid-fifties the utilization style has been the dominant style of peer review development efforts. It is so dominant that some pre-1950 processes have been replaced by this style.)

However, both styles of peer review are unsatisfactory due to inherent defects.

Between the two World Wars, the stochastic style was both effective and efficacious. It was effective because it disclosed both the superior and inferior performance in clinical practice. Thus, it continuously discovered the preceptor relationships that were used as the primary vehicle for up-grading physicians. It was efficacious because physician incomes were relatively higher and patient load relatively less for those physicians actively participating in structured peer review. Hence, they had the time available for, and did not require significant payment for time spent on, intensive case review. The stochastic style is still effective, but it has become so inefficient it is being abandoned.

Further, in 1970, Richardson demonstrated the internal inconsistency of the stochastic style, as commonly practiced. The quality and appropriateness judgments rendered exhibit a variation that is larger than the uncertainty the participating physicians are willing to accept as a basis of formal decision-making.

The utilization style is efficient. But its effectiveness derives primarily from the psychology of it being in existence. The record selection process is designed to detect plausibly inferior performance; it is not designed to detect plausibly superior performance.** Hence, it produces no guidance as to needed preceptors. But, as suggested by a previous peer review essay (Hatheway, 1972b), preceptorship is the core program of continuing medical education. (See also McDonald, 1971, page 14). Hence, one must conclude that the utilization style is a regressive evolution from the stochastic style.

In the absence of constructive, reliable, effective, and efficient peer review systems, physicians, such as P. A. Lembcke and R. S. McCleery, and non-physicians, such as D. C. Riedel, will continue the search for new design ideas. And their proposals will continue to evoke controversy.

Some controversy is necessary to the refinement of proposed solutions. It is certainly legitimate to require that proponents establish that their methods are based on sound principles, that their assumptions are reasonable, and that their included techniques be appropriate and workable. Controversy on these points is usually productive.

But complex real world problems, such as peer review, usually have more than one viable solution.† Thus controversy will arise as to which solution is the best to use in the application at hand. This type of controversy is usually counter-productive; no solution gains a sufficient advocacy to be implemented.

**The AMA's *Peer Review Manual* reflects the utilization style. Hence, it is hardly surprising that the manual states, in the Foreword, that an "atmosphere of good will accompanied by the utmost in tact and diplomacy are also *prerequisites*" to successful peer review. (Emphasis supplied.)

†Hence, the folk proverb, "There is more than one way to skin a cat."

Current solution selection practice most often identifies the competitiveness of designs in terms of opinion and activity. (As already indicated, these are performance, not impact, measurements.) In other words, current practice is to choose a design on the basis of cost versus performance competition. But the nature and degree of a design's impact is much more important than the way it works. Thus, it is design impact that must be compared to design cost to identify which designs are competitive.

The proper application of advocacy is to select one of the competitive peer review designs for implementation. Given that all parties to the selection want to get better resolution of the problem, and that they are all reasonably convinced that all plausible competitive designs have been identified, advocacy becomes the tool to obtain accommodation and consensus. But this use of advocacy must be preceded by the use of comparative analysis.

Comparative analysis is the method for identifying which of the proposed solutions are the competitive solutions. In turn, comparative analysis is productive only when an evaluation basis is defined before the analysis is initiated. The evaluation basis is characteristically defined by specifying the particular items that will be measured about any proposed solution to indicate its:

- Impact – the degree to which it resolves the problem, and
- Cost – of design, construction, and operation.

Then the competitive solutions are the ones which satisfy the principle of diminishing returns, i.e., the impact is the most that can be reasonably expected at that cost.

The purpose of the next section is two-fold:

- To demonstrate an approach for identifying peer review effectiveness, i.e., for identifying specific peer review impact indicators, and
- To propose effectiveness measures identified by using this approach.

The basic construct underlying this approach is the Theory of Effectiveness. The advantage of applying this theory to peer review is that impact measure concepts are identified before examining any proposed design. Thus, when a single comparative analysis procedure is used to establish the competitiveness of each of several (proposed) designs, there is minimal bias in the results toward or against any specific design.

Peer Review Effectiveness

"Where it's happening" is the concern of the decision-maker as well as the members of the counter-culture. But when the systems scientist is trying to develop better tools for the decision-maker, "operational environment" is his label for "where it's happening." The totality of the various types of delivered health services (including those listed in CRVS(1969)), and the providers and recipients thereof, is the operational environment of peer review. Fundamentally, a solution to the peer review problem uses medical records as a representation of that environment.

An incisive grasp of the operational environment is necessary simply because that is where the problem exists and solutions are given the ultimate test. The study of the interactions which occur in the operational environment frequently leads to the discovery that what the decision-maker has identified as the problem is an obsolete or inappropriate solution, the real problem is something else. (The *Peer Review Manual* implicitly acknowledges the possible existence of this situation.)

In general, the real problem is that certain undesirable developments are occurring and/or certain desirable developments are not occurring. In other words, the operational environment history is becoming less and less satisfactory and the decision-maker wants to get something going that will turn this situation around. So the search commences for a new solution, e.g., a system design that is somehow better than whatever design is now operating. (And the search for better peer review system designs became vigorous in 1966.)

To understand a peer review system in particular it is helpful to first understand a system in general:

- A system is a set of resources organized to influence the history of an operational environment through the selective use of the actions it may initiate and control.††

In other words, a system is an entity that has some ability to alter the development of an operational environment's history.

However, altering a history requires more than action availability, it requires understanding and decision:

- Understanding what the history has been and how it is likely to further develop.
- Deciding what
 - History is wanted,
 - Changes to make and/or preclude in the operational environment to secure the desired history, and
 - Particular available actions are most appropriate to cause the changes.

Of course, timeliness is implicit in these requirements.

A peer review system is also a set of resources organized to influence the history of an operational environment. That is, a peer review system must make decisions and take actions to cause improvement in the quality and appropriateness of the delivered health services based on its perception of the actual delivered health services; the perception is obtained by ingesting the information in the medical records. Thus, the impact of peer review is the extent to which the desired quality and appropriateness of delivered health services* is made an actuality as a consequence of operating the system.

The impact of a system design is expressed more incisively through the use of the concept of effectiveness:

††An adaptation from Hatheway, 1972a. A schema of system definitions is given by Ackoff, 1972.

*"Medical care" is more commonly used than "health service."

- Effectiveness is the (numeric) representation of the degree to which desired changes are realized, and undesired changes are precluded, in a specified operational environment as a result of decisions made and actions taken to influence the history of that environment.

This definition does not imply that effectiveness is single valued.

In a complex problem, such as peer review, one expects it will be necessary to use a set of values to describe the effectiveness of a solution (system design). In fact, one expects more than one value as a consequence of the quadrature principle of decision information organization. According to this principle, the universe of all specific types of information consists of four sub-universes. The sub-universe of which a particular type of information is a member is determined by applying these two criteria:

- The type of information is either objective or subjective. It is objective if it can be used as a decision criterion without concomitant value judgment.
- The type of information is inherently either qualitative or quantitative, and the use of numbers to represent the information does not alter this property. A particular type of information is quantitative if the same set of arithmetical operations applied to each of two values of that information does not alter their relative significance.

Thus, it is possible to have peer review effectiveness components in each of the four sub-universes.

Clearly, the effectiveness of a peer review system design is the degree to which desired changes are accomplished and/or undesired changes are precluded in the history of the quality and appropriateness of delivered health service. This peer review effectiveness concept is made useful by identifying explicitly the types of changes of interest and specifying how the degree of accomplishment is to be expressed. This process is simplified by devising objectives (goals) which are idealizations of what the desired history is to be.

The formulation of objectives is somewhat of an art for two reasons. One is that care must be used to avoid formulating objectives in terms that reflect a design bias. The other is that one must try to distinguish between essential and secondary ideas, thus avoiding the trap of comparing solutions on the basis of fringe benefits instead of fundamental resolving power.

The essential objectives of peer review are believed to be:

1. To secure maximum possible assurance that all services rendered by, or under the control of, any physician to prevent, detect and correct the consequences of disease are both those most appropriate to the needs of the individual and of the highest quality possible under the circumstances of delivery.
2. To obtain the knowledge and understanding necessary as a basis for physicians to motivate other health service providers to deliver the most appropriate and highest possible quality service.
3. To identify the actual circumstances where the appropriateness and quality of delivered services can plausibly be improved (through changes to delivery organization, facility capacity, equipment sophistication, supplies and drugs inventory, personnel skills availability, and planning, programming, managing and evaluating systems).
4. To expedite the transference of demonstrated improvements in health arts and sciences to clinical practice.

Secondary objectives are not significant until detailed process design is under consideration, hence they are not mentioned in this article.

These objectives are proposed. Each is to be either accepted or rejected by the physicians as their expression of what they intend to accomplish by individually and collectively participating in retrospective analysis and evaluation of medical care today.** Of course, it is the prerogative of the physicians to establish other objectives. For the purpose of this essay, these objectives are stipulated as satisfactory and sufficient.

The next step is to examine the peer review operational environment from the perspective of each of these objectives to identify phenomena that indicate progress in achieving these objectives. (This environment is represented by the medical records of the participating physicians.)

Both the first and second objectives are concerned with optimizing appropriateness and quality of delivered services, given the existing local availability of deliverable health services. For the purpose of designing a physician-operated peer review process it is necessary to clearly and continuously distinguish between physician and non-physician responsibility for appropriateness and quality. But, for the purpose of proposing concepts for expressing the effectiveness of peer review this distinction can be ignored.

If the most appropriate and highest quality of service is delivered, then recipient dysfunction† is minimized. As the service appropriateness and/or quality degrades, dysfunction usually increases. As the degradation increases so will the frequency of medical injury occurrence, since medical injury is the occurrence of dysfunction due to an error of omission or commission in the delivery of health service.

Detecting the occurrence of medical injury is a problem which can be resolved in several ways. The approach to, and the significant issues and factors involved in, the local resolution of this problem will be discussed in a subsequent essay. (Note that the mediation of physician-

**". . . the peer review process is an essential mechanism for evaluation and analysis of medical care today." G. A. Owsley, in the standard transmittal letter for the *Peer Review Manual*.

†See Fanshel and Bush, 1970 for a discussion of dysfunction. Also, a recipient of a health service is not necessarily a patient.

client disputes by physician societies is a current common method for detecting medical injury.)

The responsibility for medical injury is assignable to the individual under whose control the service was rendered. The responsibility may also be assignable to each person actually involved in rendering the service to the extent that the person's performance, by being improper, induced or contributed to the injury. And the managing or attending physician may be assigned responsibility on the basis that he imprudently ordered, or failed to order, a service and the imprudence leads, or contributes, to the injury. Thus, the patterns are to be identified on the basis of provider peer groups.

Of course, no one desires to cause, or contribute to, medical injury. But medical injury does occur, and it can never be completely precluded (McDonald, 1971). Hence, there will always be some observed distribution of medical injury. One should expect that a truly random distribution of the various types of medical injury assignable to a particular category of health service personnel would be associated with a highly effective peer review process encompassing that peer category. Therefore a surrogate measure of peer review effectiveness is the degree to which the experienced medical injury distribution corresponds to a truly random distribution over the members of the personnel group encompassed. For convenience, this measure can be labeled "Medical Injury Randomness Coefficient," abbreviated to MIRC.

However, the medical injury distribution can be quite random even when a large amount of medical injury occurs. Hence, other measures are also needed. An obvious additional measure is the count of medical injuries per thousand patients (or per some other convenient case load basis). Since it is desired to preclude all medical injury, the incidence rate itself is a surrogate measure of peer review effectiveness. (That it is impossible to totally prevent medical injury does not interfere with the use of the injury count per thousand patients as a partial expression of the degree of success attributed to performing peer review.)

It is customary to use measurement scales that are designed to represent increasing "goodness," "desirability," etc. with increasing numerical scale values. A count of medical injuries is a measure of "badness" or "undesirability." So the complement of the count, rather than the count itself, is used as the indicator. (The complement is simply the difference between the number of patients, in the case load base used, and the number of injuries.) For convenience, this measure is called "Medical Injury Complement," abbreviated to MIC. When it is the *count* of injuries that is the specific value of concern, rather the complement value, the symbol MIN is used.

Both MIRC and MIC have been identified as surrogate measures, as the value of each represents, to some extent, the impact of continuing medical education programs as well as peer review impact. Clearly, MIC and MIRC should jointly be used to estimate peer review effectiveness, but this pair of measurements is neither a sufficient nor incisive indicator. At present there does not seem to be a necessary, sufficient, and exclusive indicator of peer review effectiveness available.†† However, there is another measure that can be used in conjunction with MIC and MIRC as a responsive indicator of peer review effectiveness.

In any discussion of peer review processes, the subject of practice norms and standards almost always arises. The author regards this phenomenon as a symptom of the operational reality of intuition, hence, it is used as a clue as to the nature of a peer review effectiveness indicator. Consider these definitions:

- Let "practice" stand for the characterization of the pattern of health services delivered by a provider. With reference to physicians, this pattern is an integrated description of the individual's case management activity, representing the decisions made and the actions taken to prevent, detect, and rectify dysfunction from disease (including traumatic) in his clients.
- Let "norms of practice" (or simply, "norms") stand for the normative range of practice exhibited by a specified provider group.
- Let "standards of practice" (or simply, "standards") stand for that practice which is recognized as the most appropriate and highest quality that can be provided relative to the state of knowledge of the arts and sciences involved. With respect to physicians, the standards could be the upper quartile of practice at a modern teaching hospital (such as Peter Bent Brigham).

On the basis of these definitions, the effectiveness of peer review is indicated by the degree to which the norms of a provider group correspond to the standards (after adjustment for local health service delivery limitations not under the control of the local providers). For convenience, this measure can be labeled "Standards Approximation Ratio," abbreviated to SAR.

There has been some concern that the use of standards in reviewing case management practice will produce mediocrity. There is no question that the application of standards entails the risk of induced mediocrity. But it is a psychological imperative that any person whose performance is to be judged be apprised of the criteria to be applied before he performs. Hence, the application of standards must be accomplished in such a way that the risk is minimized. This matter will be discussed more fully in a subsequent essay, but for the purpose of devising effectiveness concepts it suffices to note that the standards must be periodically:

- Reviewed for possible revision, using a systematic procedure for this purpose, and
- Adjusted to accommodate local availability of deliverable health services.

Notification can be accomplished by publication in the

††Obviously, some thoughtful research is needed on this point.

appropriate professional journal; several other methods are feasible.

At this point three measurements have been proposed:

- Standards approximation Ratio (SAR).
- Medical Injury Complement (MIC).
- Medical Injury Randomness Coefficient (MIRC).

Each definition implies the use of numbers to express the result of measurement, but the information is actually qualitative. All that can be done with any two values of any one of these measures is rank-ordering. While the difference between the two values can be determined and stated, the difference has no intrinsic objective meaning. One can only say that the peer review process with the higher value is more effective (provided that the difference is greater than the uncertainty range involved).

Thus, if the values of SAR, MIRC, and MIC for System A are larger (respectively) than the values for System B, System A is the more effective. But how is one to identify which of two systems (designs) is more effective when, for example, System A's SAR value is higher than that for System B, and the MIRC and MIC values are lower? One way it can be done is by applying some algebra and geometry after defining SAR, MIC, and MIRC more explicitly as effectiveness measures:

- An effectiveness measure is a dimension of an effectiveness concept, with value scale range and units of measure defined; one measure is usually required for each component of the effectiveness concept.

The SAR component is based on determining correspondence between norms and standards. There are topological, statistical and other techniques for determining numerically expressed correspondence. For convenience, statistical correlation is stipulated as the technique that is applied. The result (technically, the "correlation coefficient") obtained from using this technique is a number, usually expressed in two or three digits, having any value between minus one and plus one, inclusive. A minus one value indicates perfect inverse correspondence, a zero value indicates no correspondence, and a plus one value indicates perfect direct correspondence. (It is a consequence of the correlation technique that the coefficient is a pure number, just as efficiency is a pure number). In this application, a negative value signifies that the technique has been improperly operated, thus any meaningful SAR value will be positive.

The MIRC component is based on comparing an experiential distribution to a theoretical distribution to determine the extent to which the former is equivalent to the latter.* Several statistical "goodness of fit" tests are potentially useable, each of which can be applied in such a fashion that the result is a pure number with a value between zero and plus one, inclusive.

Assuming the Fanshel and Bush weighting technique has been also used as part of the MIN determination process, a single number is generated which is a relative frequency; that is, the number of aggregated medical injuries per thousand patients. The range of any MIN value is therefore any positive number from zero to one thousand.

One expects an inverse correspondence between medical injury and norms of practice. Based on the geometrical interpretation of two dimensional correspondance, one can use the Pythagorean Theorem (of the right triangle) to interpret the triplet of SAR, MIN and MIRC values as a single value, as follows:

- Let the SAR value be one leg of a right triangle.
- Let the other leg of the triangle have a value determined through using some function of MIRC and MIN. For example, let the function be dividing the MIRC value into the common logarithm of the MIN value. (The logarithm improves the sensitivity of the results to small changes in low values of MIC; low values are expected.)
- Then the length of the hypotenuse (the square root of the sum of the squared values of the legs) summarizes the triplet of values into one value.

Thus, the direction (positive or negative) and amount of change in hypotenuse length over successive measurement cycles indicates the relative improvement in the effectiveness of a peer review process. And, if the same measurement process is used to estimate the effectiveness of each of several peer review systems, these systems can be mutually rank-ordered on effectiveness.

On the basis of the six preceding paragraphs, it is clearly desirable that SAR, MIC (equivalently, MIN), and MIRC each be reducible to single values for each provider group for whom peer review is being conducted. Single-valuedness, of course, requires some procedure for organizing the multiplicity of plausible characteristics into a coherency. As already mentioned, the weighting technique of Fanshel and Bush can be applied to MIRC and MIC. But a definitive technique for application to SAR is not known. However, it seems appropriate to attempt to use the organizational concept proposed by Donabedian (1968) for this purpose.

The convenience of being able to indicate peer review effectiveness with respect to a particular provider group as a triplet of values (one each for SAR, MIC, MIRC) is a sufficient reason for attempting to devise procedures (models, protocols) that can be operated to achieve single-valued representation. The underlying principle is that decisions can be more readily made by the responsible persons when the number of explicit elements to be considered is reduced without a comparable (or excessive) loss of information. Thus, such procedures yield a payoff in terms of improving system efficiency.**

*The significance of one medical injury relative to another depends principally on the type of injury in terms of additional dysfunction. The reconciliation of relative significance, so the MIC and MIRC can each be expressed as single numbers, can be accomplished by using the weighting technique developed by Fanshel and Bush, 1970.

**Relative productivity cost for a fixed set of products, expressed in terms of the percentage of total productivity cost actualized in deliverable products.

(Some of the time saved must be re-invested as a periodic review of the structure of the system's procedures and of the parameter values used in these procedures to insure that excessive information loss is not occurring.)

Now the reader's attention is invited to the third and fourth peer review objectives.

The third objective is about identifying local community situations where appropriateness and quality of health services delivered is characteristically defective due to inadequate availability of one or more services. An experiential detection probability is a relevant effectiveness indicator. However, a more detailed consideration of effectiveness relative to this objective does not seem warranted at this time. The actual determination of a detection probability may be a waste of resources, because determining SAR requires that practice standards be adjusted for the local circumstances of the delivery of health services. In other words, the ability to determine a SAR value requires the ability to detect locally inadequate availability of health services. (The detection method is generally called utilization review.) Thus, determining the detection probability appears to be a matter of "gilding the lily."

The fourth objective is about the rapidity with which health service research results are applied at the local community level. The research of interest encompasses the traditional concerns of prevention, detection, and correction of disease. But it also encompasses the restructuring of health service roles and other matters. This area will require much more thought and exploration before relevant effectiveness indicators can be identified. In fact, there has been essentially no published information or opinion on the need to include measurement of the research transfer rate as a part of peer review.

It is a general belief that health services are supposed to make people healthier. Thus, there is a temptation to use the change in population healthiness as an indicator of peer review effectiveness. In fact, population healthiness is a result of more than physician decisions and actions. It is also the result of the decisions and actions of the local power structures and the attempts of the individual population members to use available health services. Since the local population health service environment is symbiotic, it is illogical to use healthiness as a peer review effectiveness indicator.

The reader should agree that the generation of values of SAR, MIRC, and MIC based on appropriate measurements is a numeric representation of reality. That is, SAR, MIC and MIRC values are an expression of fact. Also, the reader will likely recognize that one set of these numeric facts is not understandable. Even when one has personally made the measurements and operated the procedures relative to an explicit set of providers on the basis of a specific time period, one is likely to wonder what he has accomplished.

- If that person has performed a one-time exercise, then he has accomplished nothing of value.
- But if this work has been performed as a part of a continuing program of obtaining SAR, MIC, MIRC values for each of successive time periods, then it is possible to answer a very important type of question:
 - To what extent has the implemented change in peer review policy or process improved the appropriateness and quality of health service delivered?

In other words, it is the ability to detect change in impact that is important; the absolute meaning of a single effectiveness value is not important. Thus, the basic issue is to define what must be measured in order to detect changes, and deal with other fundamentals constructively, so that design and operation efforts will be productive.

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Laboratory Aspects of Gonorrhea Control

CHARLES H. OKEY, Ph.D.*

Gonorrhea and its significance for the medical practitioner in Maine was discussed by Leadley and Lindman in a previous issue of these pages as part of a general presentation on the current status of venereal disease control in the State. Use of the Public Health Laboratory by the private sector of health care is encouraged in those situations where the physician does not have access to laboratory facilities. The purpose of this article is to provide information on the use of the laboratory for initial diagnosis and for follow-up tests of cure. Also, recommendations regarding screening for asymptomatic carriers are included.

The contemporary bacteriology laboratory is in its strongest position to date for providing gonorrhea diagnostic services. Transport and culture media have been developed which provide the physician with a reliable means of achieving diagnosis. The original technic to demonstrate gonococci by the microscopic observation of gram negative diplococci within polymorphonuclear leucocytes is useful only for male patients in an acute stage of disease. This test lends itself to usage in the physician's office and when positive may be used as the basis of diagnosis. Cultures are the only reliable means, both in terms of sensitivity and specificity, for diagnosis in the male beyond the acute stage, in the female in all stages and in both sexes as criteria of cure. Parenthetically, it should be recorded here that, when the trend of culture usage suggests general acceptance, smears will no longer be accepted for examination in the Public Health Laboratory.

The two culture media recommended currently for gonorrhea diagnosis are Thayer-Martin plate media and Transgrow bottles. Thayer-Martin is an enriched chocolate agar containing the antimicrobial agents vancomycin, colistimethate and nystatin. These agents inhibit the growth of those bacterial species found in the genital tract including the non-pathogenic Neisseria without inhibiting the growth of N. gonorrhea and meningitidis. Thayer-Martin is used in those settings in which the inoculated plate can be placed in an increased carbon dioxide atmosphere, as in a candle jar, and incubated without delay. It is not practical for the plates to be transported through the mail. Transgrow medium has the same formula as Thayer-Martin medium with the addition of trimethoprim lactate and 10% carbon dioxide in the bottle. The added antimicrobial agents serve to inhibit Proteus species which are otherwise the leading cause of overgrown culture media. Rectal cultures are made possible using Transgrow. The added carbon dioxide has a pretective function for the gonococcus and if the bottles are promptly incubated at 35-36°C growth is initiated immediately. Transgrow is recommended for use by physicians and clinics remote from the laboratory. Survival of the gonococci for 48 hours is within acceptable limits, the loss of viability being minor. Studies have shown however that preshipment incubation of Transgrow cultures for overnight will overcome this small loss. Inexpensive incubators are available and should be used in every office seeing potential gonorrhea patients. The incubation temperature of 35-36°C is critical and is mentioned again to reinforce its maintenance. Transgrow is stable for 3 months at room temperature and for 4 months in the refrigerator. Regardless of storage temperature, the medium should be warned to near body temperature prior to inoculation of the exudate.

Environmental temperatures during shipment have been shown to exert considerable influence on gonococcus growth. Some of this influence is mitigated by preshipment incubation because, once growth has been initiated prior to shipment, the chances of survival of the organism and a reliable test result are increased markedly. Insulated containers have been tried in the Public Health Laboratory and results are sufficiently improved to warrant their use on a routine basis. Larger insulated containers carrying a heat source also have been found to be useful. These containers allow for some growth of the gonococci during shipment. However, these containers are for multiple specimens and are not only expensive to acquire but the postage required may be considered excessive. Smaller containers of this type may be developed for future use.

Working jointly, the epidemiologists and the bacteriologists have reached certain conclusions as to the population segments and anatomical sites for gonorrhea screening. The disease is most often observed in Maine in the age group 15 to 29 years. Logically, it should be

* Director, Public Health Laboratory.

this same age group in which carriers are most likely to be found. Screening for gonorrhea by culture, of all females who have presented themselves for examination is recommended. The yield of positive results vary depending upon the setting. Aside from venereal disease clinics where an expected high positive rate of 30 percent is found, other sources are significant. Community health centers have yielded 10 percent, private hospital outpatients showed 6 percent, family planning centers reported 5 percent and private physicians produced 2 percent. The yield from the latter group is not high by comparison with other groups but it is significant epidemiologically and most important to the identified carrier.

In the female, the single most important site to culture is the cervix. Culturing the anal canal will add a few positive results and should be considered in the symptomatic patient. Separate cultures are recommended. In testing for cure following therapy, both sites should be cultered. Asymptomatic male carriers were found in one study of this group who had been exposed to diagnosed cases. Although this finding has not yet been corroborated by other observations, it seems reasonable to culture male contacts of known female cases. Also, it should be pointed out that it is desirable to do anal cultures on males suspected of homosexual behavior. Pharyngitis cases may yield positive cultures in either sex.

Antibiotic resistance of the gonococcus has attracted attention during recent years in apparent therapy failure cases. Reasons for the failure are multiple and involve a variety of elements including misdiagnosis, suboptimal drug dosage, single oral drug dose, biologic variation in blood drug level, reinfection and multiple sites of infection. Drugs and dosages recommended by the Department will, if properly followed, rarely result in therapeutic failure. Should a failure occur, some of the elements mentioned above may be explored reasonably for a possible explanation. Alternate drugs may be used as recommended by the Department.

The Public Health Laboratory will forward on request Transgrow bottles and appropriate mailing containers. Consultation is available to physicians and laboratory technologists. Training in the laboratory technics for gonorrhea diagnosis will be provided on an individual basis.

MEDICAL AUDIT COMMITTEE REPORT ON GASTROINTESTINAL BLEEDING

Continued from Page 238

patients had prothrombin times which were prolonged to 17 seconds or more. This suggests that although the care of the life-threatening variceal hemorrhage had been successful, the underlying parenchymal liver disease predisposed the patients to die from other complications later in their hospitalization.

IV. Summary. Bleeding esophageal varices is a lethal disease which carried a 71% mortality rate in this study. Patients with gastrointestinal bleeding and an initial systolic blood pressure determination less than 100 mmHg had the high mortality rate of 50%. Patients with a history of previous gastrointestinal bleeding are not at a greater risk than those without such a history. An effort should be made to document in the chart of every patient admitted with gastrointestinal bleeding whether drugs provoking gastrointestinal bleeding had or had not been recently ingested. A careful review of the charts of the twenty-three patients who died after presenting with melena or hematemesis did not reveal any deficiencies in their care. The high overall mortality rate of 25% should be reexamined by a similar review in approximately two years. This review should include all patients admitted with melena or hematemesis and not just those in whom the evidence of bleeding had occurred in the 24 hours prior to admission. To simplify chart retrieval the PAS-MAP system should be altered to include the specific indication that the patient was admitted with melena or hematemesis.

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HEALTH CARE FOR ALL GOAL OF PEN BAY

Maine Blue Cross and Blue Shield has been working closely with the Penobscot Bay Medical Center since 1969 in the planning, arranging, and organizing of the administrative concepts of the program as well as the benefit structure, capitation payments, fee schedules, out-of-area services, utilization review formats, claim information reporting systems and catastrophic coverage.

To this end, Maine Blue Cross and Blue Shield assigned an executive staff member, Mr. G. F. Harmon, to work as part of the PBMC staff in the capacity of Medical Care Administrative Consultant to coordinate the planning and administrative development.

As a result, both organizations have established an administrative program that will greatly reduce duplication of effort in the processing and reporting procedure; and thus, make use of the best of what exists rather than attempting to reinvent what would be an extremely costly and less efficient system.

A hospital/medical catastrophic package was written to supplement the base program. It will enable the base program to proceed with financial soundness and ensure continuous coverage for enrollees on catastrophic cases.

This Supplemental Benefit Plan, as it is called, will be underwritten by Blue Alliance Mutual Insurance Company.

The Penobscot Bay Medical Center (PBMC) is the offspring of negotiations between the Camden Community Hospital and the Knox County General Hospital. The development of the organization was patterned from the requirements and recommendations of all involved planning agencies and individuals both in the health and economic fields.

The Center, a private, nonprofit corporation, incorporated in the State of Maine in January 1969, has been designed to plan for and provide a total spectrum of health services to residents of the Mid-Coast Region of Maine. This concept is unique and utilizes many new and innovative techniques in the provision of health services. The Board of Trustees includes representation from the community and from the boards of the two local hospitals.

During the past several years, Penobscot Bay Medical Center has developed a health care system for the poor and near poor of the midcoast region of Maine, which will serve as a demonstration of what can be available for the entire population in the new PBMC General Hospital. The program is being formulated through planning funds made available by the Office of Health Affairs, Office of Economic Opportunity (OEO). In July 1971, Penobscot Bay Medical Center received an operational grant from OEO to implement their proposal which will result in innovative alteration in the medical service delivery system in all of Knox County and portions of Lincoln and Waldo Counties.

The emphasis of the program is placed on out-of-hospital services focused on illness prevention and health maintenance. The program enables all subscribers to take advantage of a broad range of services which are preventive, curative, and restorative in nature. Benefits include, but are not limited to, preventive care, in-hospital care, surgical care, home health, mental health. Dental care is offered for those age 16 or under. The program is unique for the State of Maine.

An additional unique aspect of the plan is the means by which primary services will be rendered to the target population. Early negotiations with the Penobscot Bay Medical Associates, a corporation representing the Knox County Medical Society have resulted in an agreement between the Associates and Penobscot Bay Medical Center, wherein the Associates will provide the primary physicians services essential for the implementation of the Ambulatory Care Program. The (incorporated) Medical Society (Penobscot Bay Medical Associates) will receive a capitation payment from Penobscot Bay Medical Center for the primary care of those persons covered under the plan's benefit package. There will be a single primary physician and a single dentist at the beginning of the program. The primary physician will be employed by Penobscot Bay Medical Associates Inc.

An integrated plan of follow-up for each subscriber is an essential part of the health care package. A unit medical record system and a health maintenance treatment plan will all be part of the initial subscriber's entrance into the program.

A family-oriented Ambulatory Care unit is located adjacent to Knox County General Hospital. This 4,000 square foot unit was officially dedicated July 17, 1972, (the Niles L. Perkins, M.D., Memorial Ambulatory Care Center).

PBMC intends to build a new general hospital of 130 beds on a 39-acre site at Rockport, Maine. The new Medical Center and its Ambulatory Care Unit is scheduled for completion in 1975. At that time, the two existing hospitals along with the temporary ambulatory care building will be allocated a different role within the overall program.

Research in Progress

Myocardial Infarct Size in Experimental Coronary Occlusion in the Pig

CLIFFORD V. NELSON, Ph.D.* and E. T. ANGELAKOS, M.D., Ph.D.**

This is a joint project between the Maine Medical Center and Hahnemann Medical School. At MMC, we are measuring the VCG before and one week after ligation of a branch of the anterior descending or circumflex coronary artery. The objective is to determine the size and location of the infarct from the VCG of the QRS complex. The pig was chosen because its coronary system is similar to that of the human being. Biochemical studies, done at Hahnemann, are designed to determine whether local release of catecholamines in the ischemic or infarcted areas contributes to the ultimate size of the infarct. If this is found to occur, attempts will be made to block the release of local catecholamines and thus reduce the size of the infarct.

This work is being done under Contract 71-2495 from the National Heart and Lung Institute.

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News, Notes and Announcements

Accreditation Institute Scheduled for Maine

The Maine Medical Association and the Maine Hospital Association will offer an institute for trustees, administrators, and physicians in conjunction with the Joint Commission on Accreditation of Hospitals. The program will be conducted in Waterville, Maine, December 1-3, 1972, at the C. A. Dean Education Center, Thayer Hospital.

The Institute will be conducted by a faculty of the Educational Division of the Joint Commission. Particular emphasis will be placed on an analysis of the JCAH Standards, and their demand for a quality assurance program. A detailed investigation of medical staff bylaw provisions critical to effective implementation of quality controls in hospitals will be presented with a review of the changing physician role in the overall patient quality challenges.

Step by step procedures designed to assist the hospital and its medical staff in creating and implementing an effective quality assurance program will be demonstrated. The procedures include utilization controls, medical care evaluation techniques, staff education programs, corrective action, on-going monitoring of care, and credentialing mechanisms. Documentation and regular reporting requirements – to the medical staff, to management, and to the governing body – are particularly emphasized.

Top trustee, administrative and medical staff representation from Maine hospitals is essential to make the TAP Institute effective. Attendance by hospital attorneys and officials of public health agencies is also encouraged. There is a special need for active physician attendance in order to make certain that adequate quality controls are in fact implemented by Maine hospitals.

The Joint Commission on Accreditation of Hospitals believes the TAP Institute demonstrates effective internal controls over the quality and costs of the health care delivery system. The TAP Institute is a response to hospital boards, administrations and organized medical staffs to implement these programs while at the same time satisfying the demands of the consumer movement and its political supporters for public accountability.

Maine hospitals and other interested institutions in the eastern United States are invited to attend the December educational program. Since attendance is required of top medicine and management representatives, physicians interested in the TAP Institute should contact their Chief of Staff or hospital administrator.

MEDIPHONE

MEDIPHONE, the Nationwide Physicians' Consultation System, has been established by the American Society of Contemporary Medicine and Surgery, under the leadership of Dr. Michael DeBakey, President, and Dr. Morris Fishbein, Chairman. The Society has extended its goal of continuing education by providing medical information and consultation to physicians by telephone. Now any physician, regardless of his geographic location, can call (312) 782-7888 and receive expert advice from one of 400 outstanding specialists in all fields of medicine and surgery. This service is available to all physicians and does not require membership or pre-registration. It is hoped that physicians will use this valuable service when faced with perplexing medical problems. The charge for a five minute conference with a prominent specialist is $15.00.

County Society Notes

WASHINGTON

A regular meeting of the Washington County Medical Society was held at the Peabody Memorial Library, Eastport, Maine on September 18, 1972 with six members present.

The President, Dr. G. Bernard Shaw, Machias, Maine reported on the status of the MIC Program. He stated there had been some administrative changes, but this had been straightened out and it seemed to be doing well at present, with all of the staff working well.

The Family Planning Clinic which was also under the MIC Program has been set up and is gradually functioning well.

There was considerable discussion about the Regional Medical Center located in Lubec, Maine. It was felt after considerable discussion that they had perhaps gone beyond their original purpose.

The following resolution was presented:

> "Be it resolved that the Washington County Medical Society views with concern the extension of the Lubec Regional Medical Center into areas not primarily served by Lubec physicians, which is Machias, East Machias, Pembroke, Perry, Edmunds, to some extent Cutler, Dennysville, Whiting, Plantation 14. We feel that this is direct competition with other physicians subsidized by government funds and that it can only be countenanced if the Lubec Regional Medical Center agrees to pay physicians in other areas for ordinary and regular services to their subscribers. If this is not done, the Society will have to re-consider our position of approval of neutrality toward the Lubec experiment."

The Foundation Plan was discussed. It was felt that we did not have sufficient base to start a foundation plan, but if we could join with Hancock County, this might be possible.

Drs. Donald M. Robertson and G. Bernard Shaw were appointed as a committee to study Foundation Plan. This again will be brought up at the meeting of next month.

Meeting adjourned at 9:35 P.M.

KARL V. LARSON, M.D., *Secretary*

LINCOLN-SAGADAHOC

The regular monthly meeting of the Lincoln-Sagadahoc County Medical Society was held at The Ledges Inn, Wiscasset, Tuesday evening, September 19, 1972. Twenty-four members and guests were present.

The meeting was called to order by the President, Dr. Anthony J. Keating. The minutes of the May meeting were read and accepted as read. There was no old business.

Dr. Richard C. Leck proposed that R.M.P.-sponsored scientific meetings be held in association with county medical society meetings. After a great deal of discussion, it was moved, seconded, and passed that this society recommend to Dr. David Schall that such scientific meetings be held separately from county society functions.

Dr. Bostwick presented to the members the names of Drs. Anthony Horstman, David Schall, and Richard Stewart, in nomination for election to active membership, as recommended by the Board of Censors. These nominations were approved unanimously.

Guests and new members were introduced, and Dr. Nelson P. Blackburn introduced the speaker, oral surgeon Dr. William Howell of Bath, who discussed reparative surgery of the face, mouth and neck.

GEORGE W. BOSTWICK, M.D., *Secretary*

KENNEBEC

The Kennebec County Medical Association met at The Silent Woman, Waterville, Maine on Thursday, April 20, 1972. Dinner was served to forty-nine members and guests. Among the guests at the head table were Mr. Sumner F. Lipman, President of the Kennebec County Bar Association and Mr. Martin Brodie, last year's President of that Association.

The business meeting was opened by the Vice-President, Dr. Richard R. Dole. The minutes of the last meeting were read and accepted. Dr. Richard T. Chamberlin reported on the recent Maine Medical Association House of Delegates meeting, where a recommendation was made that State Association dues be raised by $25.00, with this increase being marked for deposit in the Maine Medical Education Foundation. There was extensive discussion about this recommendation and it was agreed that more information about the Foundation's needs would be provided at the May meeting so that our Delegates may know the desire of our membership in this matter.

The Scientific Program was then given by Elliot L. Sagall, M.D. of Boston. Dr. Sagall is an Instructor in Medicine at Harvard Medical School, and a Lecturer in Law and Medicine at Boston College and Boston University Law Schools. He is also Medical Editor of Trial Magazine and Co-author of the text "The Law and Clinical Medicine." Dr. Sagall gave a thorough and informative discussion of "Medical Malpractice and How to Avoid It."

The meeting was adjourned by Dr. Dole at 9:40 P.M.

The annual husbands' and wives' dinner of the Kennebec County Medical Association was held at the Augusta Country Club, Thursday, May 25, 1972. The business meeting was opened by the President, Dr. Francis J. O'Connor, and the minutes of the last meeting were read and accepted. It was announced that a request had been received from the Woman's Auxiliary to our Association for a donation to aid the auxiliary scholarship fund. This request was referred to the Council for appropriate action. The name of Dr. Bhupendra P. Mepani of Augusta was announced as a candidate for membership and the application was referred to the Council. There was a discussion of a proposed dues increase for the Maine Medical Association, but no conclusive recommendation resulted from this discussion.

The evening's scientific program was given by Charles S. Houston, M.D., Professor of Community Medicine, University of Vermont. Dr. Houston is also Director of "Project Logan High," a high altitude research laboratory on Mt. Logan in Alaska, sponsored by the United States and Canadian Air Force Volunteers. Dr. Houston's presentation was entitled "Fun and Games about 17,000 Feet" and was a masterful presentation not only of the terrain involved but of physiological data which has been accumulated by this laboratory under difficult high altitude conditions. The meeting was adjourned by Dr. O'Connor at 9:30 P.M.

FRANCIS A. SPELLMAN, M.D., *Secretary*

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Psychoanalysis

John A. Ordway, M.D.*

As more psychoanalysts move to Maine, it may be of interest to take a cursory look at this field and at what a psychoanalyst brings with him by way of training, skills, and orientation to medicine.

Psychoanalysis embraces a technique of psychotherapy, a body of knowledge, and a method of research. Its origins were in the early cases of hysteria treated by the internist Josef Breuer and the neurologist Sigmund Freud in the 1880's and 1890's in Vienna. During these early attempts to bring relief to patients, the neurologist Freud gradually developed a technique of encouraging the patient who was supine on the couch to talk freely about whatever came to her mind. He in turn listened to these "free associations" as they came to be called, and attempted to comprehend the verbal expression of the patient's flow of thought and made deductions from these words about the patient's psychological state. This was and still is the psychoanalytic technique in the successful treatment of the psychoneuroses, migraine, hypertension, colitis, other psychosomatic illnesses, and the addictions. The origins of psychoanalysis have been therefore rooted in a therapeutic setting, and from this therapeutic setting and the observations thus gathered an impressive body of knowledge and a technique of research into human behavior has evolved. Psychoanalysis as a science therefore is based upon interpretation of empirical data produced in a clinical setting. The data are composed of what the patients say and do, what they say they feel, and also what they omit saying, but communicate non-verbally.

In the early days of analysis, the patient was seen for an hour up to six times a week. In 1972, patients are seen for 45 or 50 minutes three to five times a week in the traditional supine position, which has proved still the most relaxed posture for a patient to speak his mind freely and without the interference of eye contact with the analyst who is out of sight behind the couch. The interventions of the psychoanalyst aim at clarifying the patient's feelings and ideas so that the patient can gain further insight into and integration of his unconscious.

It is of course a basic postulate of psychoanalytic theory that consciousness is an exceptional rather than a regular manifestation of human psychology. It is furthermore basic to psychoanalysis that all psychological events are the effects of psychological causes, and that no verbal productions are meaningless. Such basic knowledge is part and parcel of every psychoanalyst's functioning; but since these and other postulates sound strange and foreign to many people, it might be well to review the development of the theoretical knowledge used daily by a psychoanalyst. When Freud discovered the essential unconsciousness of mental activities, he developed the first of several approaches to the human psyche, called the "topographical model." In this concept or model, he divided the psyche into roughly two layers, the unconscious and the preconscious, which were separated by the "repression barrier," which ordinarily shut off the contents of the unconscious from penetrating into the pre-conscious without a particular kind of mental effort. Consciousness he regarded as a sort of eye or searchlight which could light up selectively the darkness of the preconscious but never the impenetrable gloom of the unconscious. He conceived therefore of mental events proceeding with or without consciousness and with consciousness being the exceptional intervention of a kind of sensory organ or searchlight which played selectively about the dark preconscious. An example of the way in which the preconscious may be regarded as a storeroom of relatively accessible memories or feelings, events or persons is the lecture room technique of bringing up suddenly to the class the name of a faraway and little thought of place to demonstrate that a memory of, say, far-off "Zanzibar" has been in the dark storeroom of memories; but has not been consciously thought of by the class until consciousness shines its searchlight upon the word after the lecturer mentions it. Or perhaps the lecturer mentions a specific person like Paul Revere, who is easily accessible to an American's memory but has little day-to-day reason to be in consciousness until mentioned.

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Freud recognized fairly early the penetration of unconscious contents into the preconscious. In this phenomenon, the repression barrier was traversed by unconscious material and derivatives of the unconscious then came to reside in and have influence on the preconscious. When the patient became consciously aware of feelings and thoughts in the preconscious and spoke them aloud to Freud and his colleagues, these psychoanalysts were able to make certain deductions about the *un*conscious even though it lay beneath the repression barrier, and thus come to deeper understanding of its apparently illogical, contradictory nature. Seemingly illogical slips of the tongue, dreams, accidents, and neurotic symptoms thus become understandable in the light of these verbal representations of various powerful impulses, drives, and emotions thrusting up from their residence in the unconscious.

Guided by Freud's genius at interpreting his own dreams during his self-analysis, which began in the 1890's and continued throughout the rest of his life, the interpretation of dreams came early to be a decisive tool in helping the patient to understand himself, an important instrument in the investigation of the human psyche, and a source of much scientific knowledge about human psychology. Freud discovered that the experience of the dreamer during the faint consciousness of sleep was only the end result of much preconscious and unconscious mental activity. The dream which the dreamers remembered, called "the manifest dream," was only a relatively bland representation of latent wishes which, represented in their raw form, would have disturbed and awakened the sleeper and which were therefore disguised so that the patient could continue to sleep. But children's dreams were recognized early to be expressing wishes directly, as in Anna Freud's famous dream about eating "stwawbewwies stwawbewwies" which she had wanted to have during the daytime. Not being allowed to eat because of daytime illness but finally hungry at bedtime, she finally attained her wish to consume them in her dream at night. But with some exceptions the dreams of adults were highly disguised wishes, and the true meaning of a dream could be understood only by following a train of associations back from the manifest through the hidden or "latent" content of the dream and finally arriving at the wish the dream sought to fulfill. Similar techniques were employed furthermore to understand the meaning behind slips of the tongue, symptoms, and mistakes or accidents in the patient's life.

Such explorations beneath the surface of a patient's behavior led Freud to a deep understanding of the mechanics or "dynamics" of each analysand's mind. And exploring further into the history of such dynamics of the mind ("psychodynamics"), he found that they were rooted in each individual's early interchange with his childhood environment, an environment which was of course most importantly inhabited by his mother, father, and siblings – or substitutes therefore like baby sitters, teachers, and intimate playmates. These early relationships interacting with the constitutional "givens" of each psyche made up the "genetics" of each personality.

Further analysis of his patient's associations to childhood provided evidence of the existence of "infantile sexuality" in children. Although a storm of controversy broke over his head about this issue, the calming passage of time has brought ample proof to countless professionals, confirming the sexual fantasy life and activity of children. Over the past twenty years "cute" remarks like a boy's "I'm gonna marry mommie" have become more widely and deeply understood as direct statements of very real and very intense wishes and *goals*. The probing physical examinations of the four-year old's "doctor game" and discussions of the "findings" might have been dismissed in 1869 as the innocent play of children without any real meaning, but by 1972 it has become apparent that these youngsters have been at a very enjoyable sex play of sorts. Prior to the development of the four-year old's "phallic" sexuality, he has of course passed through other periods of development which have left their imprint on this and other "games." In the "oral period" he has fed with intensity at breast or bottle, been caressed, fondled, and his whole body surface cared for with tenderness and intimacy. He has then struggled passionately to have his way in the "anal" period to defecate at will, aggress against siblings or household objects, and conversely present his mother with smiling moments of "good" behavior.

Freud and colleagues like Abraham traced neurotic symptoms and neurotic characters to the persistence in the adult of such infantile sexuality. They described the persnickety-neat, punctual, ritualistic, repetitive, "nit-picking," fault-finding "anal" character, whose life style caricatured a mother's anal period nagging. In more recent years, the whiskey-nipping alcoholic's "oral" dependency and wish to be approved, loved, caressed, fondled, totally accepted and taken care of have been more and more clearly delineated in psychoanalytic literature. The excited upward thrust of the phallic character who has inflated a long list of achievements to erect his name to the skies has recalled the fable of Icarus and his unbridled ambition.

And when these neurotic characters are unable to gratify sexual or aggressive impulses and these impulses pile up great pressure behind the repression barrier that dams them up, in alarm they may use continuously and intensely one or more defenses to shore up the dam to the point that an inconspicuous defense may become a conspicuous symptom of a psychoneurosis. The anal ("obsessive-compulsive") character, deprived of sexual gratification and her repression barrier threatened by a buildup and possible breakthrough of promiscuous sexual "fire," may spend anxious hours going into the basement of her home to make sure that her "furnace's" excessive fire is not about to burn down her whole house. This precautionary obsessive-compulsive activity may be the only one or one of several symptoms of psychoneurosis which she may develop in order to remain a "good girl" with a clean reputation and to keep her "self" (house) from being destroyed.

By the 1920's, Freud and his colleagues developed a new working model that further elucidated the interrelationships of psychological forces. This "structural model" kept the previous genetic, dynamic, and topographical concepts but added the "Ego, the Superego, and the Id."

Each of these structures is tremendously complicated and can be touched on only with brevity in this paper. In general, the Ego is a coordinated system of functions which mediates between the Id, the Superego, and the environment in which the individual lives. The Id, which is totally unconscious, contains the raw sexual and aggressive drives which seek only gratification without any modification whatsoever. The Ego, using its understanding of reality of the Id and Superego, attempts to find compromises that will satisfy the raw drives of the Id and at the same time satisfy the demands of the environment and of the Superego. In the process of carrying out this role of mediator, the Ego uses not only primary autonomous ego functions such as for example perception, control of motility, memory, intelligence, object (person) comprehension, innate talents and time sense, but also ego mechanisms that are perhaps more familiar to the casual student of psychoanalytic literature like sublimation, rationalization, denial, etc. The ego contains the idea of "self" or "personhood." The ego has the ability to bind together and integrate the products of these functions and so exercise critical functions and abstract thinking as to carry out executive functions that harmonize the demands of the two other psychic structures with the environment. The ego develops, refines, and responds to emotional signals like anxiety, shame, and guilt. For example, in response to a general sense of anxiety or vague "misgivings" about the workup of a patient, the ego of a physician may decide to re-think his diagnostic conclusions until he has "satisfied" himself that he has reached the proper diagnosis and is ready to draw up a plan for treatment. "Satisfying" himself not only includes a sureness that he has proceeded with thorough logic but also implies the disappearance of his vague misgivings or unease about the case. This example also illustrates how a "normal" person makes use of signals like anxiety and further demonstrates the growth of psychoanalysis as a psychology of the normal as well as of the abnormal.

The superego, in a way, is a distillate of the original parental "do's and dont's" which through the years develop into a sense of what is "ideal" and what is "wrong," of what is "good" or "bad." In the positive sense, the superego provides ideals towards which a person may tend. The superego contains prohibitions which forbid a person from carrying out certain acts. When the superego is in conflict with the ego, the ego and therefore the person is consciously or unconsciously aware of feelings of guilt and allied emotions.

As noted, the Id is composed of raw instinctual drives that seek immediate gratification. By the 1920's, the Id was also recognized to have not only sexual instinctual drives but also aggressive drives. In keeping with the "dual" instinct theory, the Id is therefore regarded as a highly charged battery of not only loving sexual but also aggressive, hostile, and destructive instinctual components.

The training of psychoanalysts is rigorous and at the Chicago Institute, for example, is said to average about 9 years in length. Such training includes not only didactic courses in psychoanalysis and the supervision of cases but also an extremely thorough training analysis of the student analyst. Such an analysis aims at providing the beginning analyst with the ability to look deeply within his own preconscious and to resolve his own conflicts so as to know himself thoroughly and therefore be better able to recognize and analyze objectively the contents of his patient's preconscious. Both before and for a lifetime, after completion of institute training, psychoanalysts join societies of psychoanalysis whose purpose is *"to foster the growth of and advances in psychoanalysis. In keeping with this purpose, it shall provide an organization for affiliation with and communication with other organizations of like purpose such as the American Psychoanalytic Association and its component societies.

"It shall stimulate interest in the education of psychoanalysts; foster scientific discourse among psychoanalysts and with qualified experts in other fields, and advance knowledge concerning the application of psychoanalysis. In addition, it shall seek to maintain proper standards of psychoanalytic practice, and to attempt positively to influence standards of psychiatric practice in the community." In the pursuit of its general purpose to foster the growth of and follow advances in psychoanalysis, a society organizes programs on the subject of psychoanalytic group psychotherapy, the psychodynamics of the psychiatric residency, the development of a system of ethics from psychoanalytic insights, and psychoanalytic observations on the black-white confrontation. Societies also lay the groundwork for and organize institutes for psychoanalysis, participate in psychoanalytic research and writing, and apply psychoanalytic principles to the rapidly growing field of community psychiatry.

*From the Constitution of the Cincinnati Psychoanalytic Society.

Suggested Reading:

An Elementary Textbook of Psychoanalysis, Charles Brenner, Doubleday Anchor Books, Doubleday and Company, Inc., Garden City, New York, 1957.

Concepts and Theories of Psychoanalysis, Heinz Kohut and Philip F. D. Seitz, A chapter in "Concepts of Personality." Joseph M. Wekman and Ralph W. Heine, editors, "Concepts of Personality." Chicago: Aldine Publishing Company, 1963.

Pine Ledge Road, Bangor, Maine 04401.

Adams-Stokes Attacks Due to Paroxysmal Ventricular Tachycardia*

Joe R. Wise, Jr., M.D.

Central nervous system symptoms such as syncope and dizziness, often attributed to cerebral vascular disease, may be caused by cardiac arrhythmias. The types of responsible arrhythmias are various and include complete heart block, sinus bradycardia, sinus arrest, ventricular and supraventricular tachycardias. The purpose of this communication is to describe a patient with recurrent syncope caused by paroxysmal ventricular tachycardia. Diagnosis was facilitated by the use of a portable tape EKG recorder.

Case Report

A 73-year-old man was admitted in July 1971, for evaluation of recurrent syncope. In 1963, he had an anterior myocardial infarction and recovered without incident. Since December 1965, there were episodes of intermittent dizziness and unconsciousness which lasted from a few seconds to four or five minutes. These episodes appeared suddenly with a few seconds warning, were unassociated with chest pain or shortness of breath or localizing neurological symptoms or signs, and were not related to body position or exertion. In 1965, he was hospitalized following an episode of syncope. The electrocardiogram at that time showed sinus rhythm with no change from the previous tracings. Aortic arch and innominate arteriograms revealed diffuse arteriosclerotic disease with changes in the basilar artery and the carotid siphon. During the hospitalization, he developed cardiac arrest with loss of pulse and blood pressure. Electrocardiogram showed sinus arrest with asystole. Subsequently, during an episode of dizziness and near-syncope, the electrocardiogram showed bradycardia, nodal rhythm and AV disassociation with a slow ventricular response. Shortly before discharge, he had ventricular fibrillation which responded to electric shock. Pronestyl was given and continued at the time of discharge.

For six weeks prior to the most recent admission, there were increasingly frequent episodes of dizziness and near-syncope. During these episodes, observers reported that the radial pulse became extremely slow, irregular, and at times imperceptible and that return to consciousness was accompanied by the return of normal pulse rate. Electrocardiogram during recovery from one of these syncopal episodes showed only occasional ventricular ectopic beats. Pronestyl which had been discontinued was given again (250 mgm. every six hours). In spite of the Pronestyl, the syncopal episodes and dizziness continued and he was admitted to hospital for evaluation. Other medications included Coumadin® and digitoxin 0.10 mgm. daily.

At the time of examination, the patient appeared chronically ill without specific neurologic abnormalities. Blood pressure 110/80, pulse 80 to 85 and regular except for a few premature ventricular beats. Carotid pulse was full without bruits and the carotid sinus was not excessively sensitive to stimulation. The left ventricle was enlarged, but there were no congestive signs. There were no heart murmurs, and no third or fourth heart sounds. Peripheral pulses were intact. Cardiac monitoring for 48 hours did not demonstrate any arrhythmia. For social reasons, the patient was discharged home after 48 hours. A 12-hour portable tape recorded electrogram at home demonstrated episodes of paroxysmal ventricular tachycardia which coincided with the episodes of syncope (Fig. 1). The dose of Pronestyl was increased to 250 mgm. and 500 mgm. alternately every four hours, and the episodes of syncope did not recur.

Discussion

In the strictest sense, the term Adams-Stokes attacks (or Morgagni-Adams-Stokes attacks) is reserved for episodes of syncope due to complete heart block. From the practical point of view, however, dizziness, nearsyncope or syncope are all part of a symptom spectrum due, in this instance, to a fall in the cerebral blood flow as a result of the arrhythmia. Since the cause of all of these various symptoms is basically the same, we should widen our concept of Adams-Stokes attacks to include all these forms of arrhythmogenic cerebral dysfunction – that is cerebral symptoms including seizures which result from a fall in the cerebral blood flow due to a disordered heart beat.

Many types of cardiac arrhythmias may produce episodes of cerebral dysfunction.[1] Complete heart block is the most familiar rhythm disturbance associated with cerebral symptoms. The heart block and the symptoms may be intermittent and, therefore, difficult to diagnose since the heart rate and the electrocardiogram between syncopal episodes may be normal. In many of these patients, however, random electrocardiograms show conduction defects which may provide a clue to the etiology of the syncope.[2]

Other bradycardic rhythms such as extreme sinus bradycardia and intermittent sinus arrest may cause disabling central nervous system symptoms. These arrhythmias may likewise occur without warning in patients with sinus rhythm and a normal electrocardiogram between attacks.[3] Many of these patients do not respond favorably to drugs and a cardiac pacemaker is required to control their symptoms.

Sustained tachyarrhythmias may be associated with symptoms of decreased cerebral blood flow and in some patients syncope may occur at the onset and/or termination of the paroxysms.[4,5]

The treatment and prevention of these arrhythmia-induced symptoms depends on the type of arrhythmia. A cardiac pacemaker may be required to control symptomatic sinus bradycardia or complete heart block while on the other hand, paroxysmal supraventricular tachycardia may respond to conventional antiarrhythmic drugs.

In the patient described above, the history provided some clues and circumstantial evidence but no specific diagnosis. There was some evidence to suggest recurrent episodes of ventricular tachycardia were responsible for the syncope. Previous episodes of cardiac arrest had been

*From the Cardiology Section, Eastern Maine Medical Center, Bangor, Maine 04401.

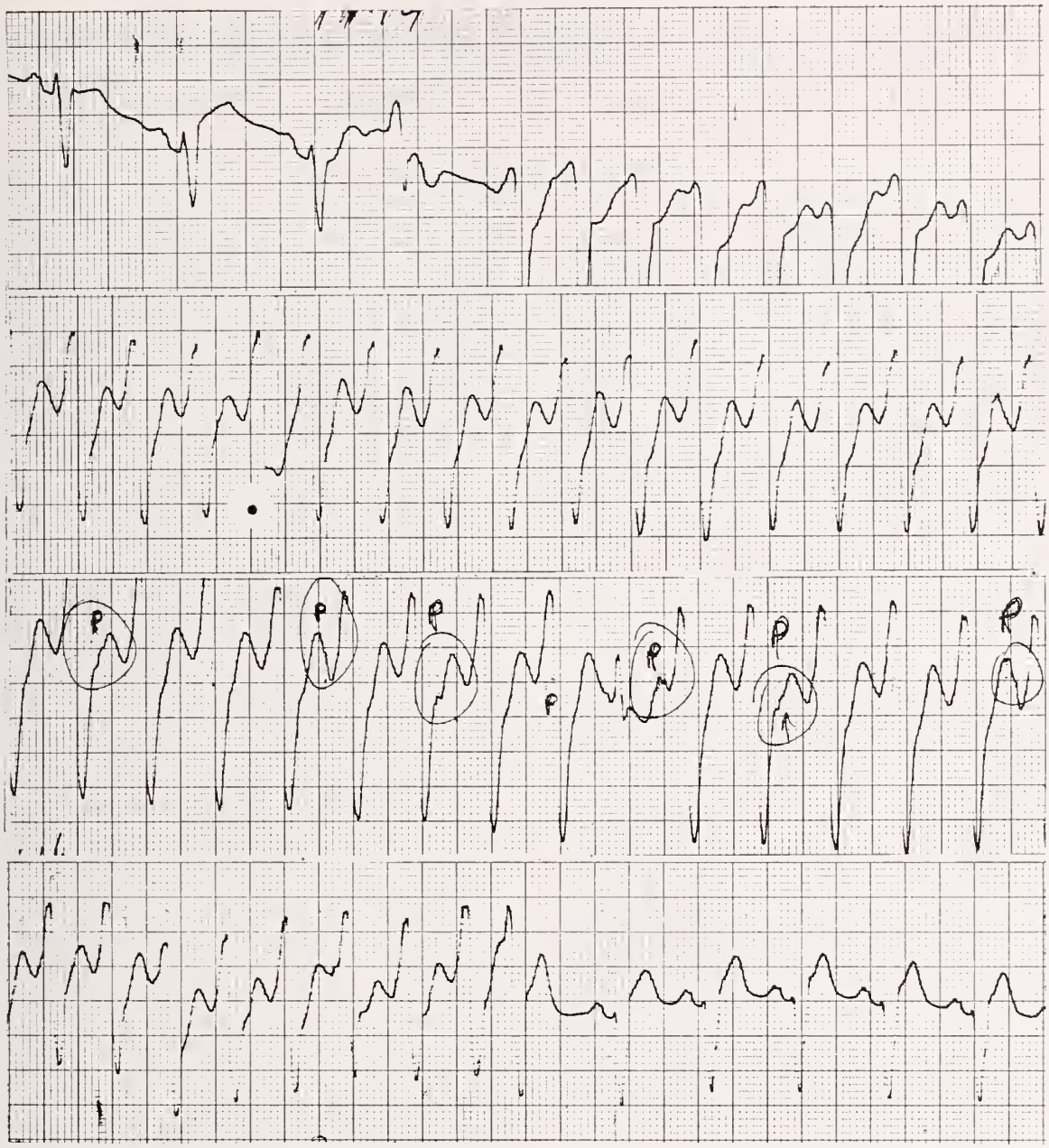


Fig. 1. Rhythm strip from a 12-hour tape-recorded electrocardiogram demonstrating the paroxysmal ventricular tachycardia.
A. 11:14. Initiation of the ventricular tachycardia.
B. 11:15. Ventricular tachycardia. The fourth complex is a ventricular fusion beat.
C. 11:16. Irregularities within the S-T segment and T-wave which likely represent independent atrial activity.
D. 11:46. Spontaneous termination of ventricular tachycardia with return to sinus rhythm.

associated with ventricular arrhythmia (ventricular fibrillation) and the only rhythm disturbance documented on recent electrocardiograms was premature ventricular beats. On the other hand, there was a history of documented sinus arrest and the description by observers that during the episodes of syncope the radial pulse was "very slow and irregular" suggesting extreme sinus bradycardia and/or sinus arrest. Electrocardiographic monitoring in the cardiac care unit did not disclose any rhythm disturbance. However, using a battery operated electrocardiographic tape recorder at home, episodes of paroxysmal ventricular tachycardia were identified at the time of the syncopal episodes and both the tachycardia and the syncope abolished after the dose of Pronestyl was increased.

The "very slow and irregular" pulse described by relatives suggested that perhaps marked sinus bradycardia, sinus arrest or atrio-ventricular block was the cause of syncope and that cardiac pacing would be required. In this case, however, variation of the pulse was likely due to the ventricular tachycardia and this variation can be

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The Saline Load Test – Its Use in the Diagnosis and Management of Gastric Retention*

PHILIP G. HUNTER, M.D.

Gastric retention is the presence of an abnormal volume of food or fluid within the stomach for an excessive period of time. Partial or complete gastric outlet obstruction as a result of acute or chronic peptic ulcer disease in the region of the pylorus or duodenum, or neoplastic disease located in a similar anatomic region, may result in gastric retention.[1–3] The finding of gastric retention as a complication of obstructive disease of the gastric outlet frequently influences the course and management of this clinical problem. The Saline Load Test is a simple diagnostic procedure which may be utilized to confirm the presence of gastric retention, to quantitate the degree of obstruction, and to objectify the patient's response, or lack of response, to therapy.

METHOD

The Saline Load Test is generally performed at the bedside of the patient. A nasogastric tube is first introduced and passed into the stomach. Any residual gastric contents are aspirated and discarded. 750 ml. of 0.9% sodium chloride are introduced as rapidly as possible into the stomach, usually by way of an intravenous fluid tubing connected directly to the nasogastric tube. Generally four to five minutes are required to infuse this quantity of fluid into the stomach. Thirty minutes from the time saline was first introduced the stomach is aspirated of all residual saline. The patient is rotated in varying positions and the tube adjusted to varying depths in order to assure complete emptying of the stomach. The aspirated fluid is then measured and recorded. The nasogastric tube may then be removed and the test terminated or, if nasogastric suction is to be used in the treatment of the patient, the tube may be left in place.

DISCUSSION

In an effort to quantitate and objectify the presence of gastric retention Goldstein and Boyle[4] first described the technique of introducing a given volume of fluid into the stomach, allowing it to dwell for a specific period of time, and determining the residual volume of fluid at the end of that interval. From their data they determined that a normal stomach without obstruction will usually be able to clear 650 ml. of saline within 30 minutes and that less than 100 cc. will remain after that interval. Likewise, a residual of 400 ml. or more was always associated with significant gastric outlet obstruction. Between 100 ml. and 400. ml. an overlap existed in that some normal patients appeared in this range and likewise some patients with proven gastric outlet obstruction were also found to retain this quantity of saline. However, experience has shown that the greater the residual the more likely significant obstruction exists even if the total residual volume is less than 400 cc. This was also confirmed by the data of Goldstein and Boyle.[4]

In addition to establishing the diagnosis of gastric retention due to gastric outlet obstruction, the Saline Load Test may be utilized to follow the course of that obstruction and its response to conservative therapy. Likewise, the clinician may obtain important information which will aid him in deciding whether continued medical therapy is indicated or surgical intervention required. Frequently the cause of partial or complete gastric outlet obstruction is due to acute and chronic peptic ulcer disease. The etiology of the obstruction is generally secondary to either edema or fibrosis. If edema is the primary cause of gastric obstruction then, while under adequate medical management over a period of several days, edema will subside. If, on the other hand, the obstruction is secondary to fibrosis and stricture medical management will have little, if any, effect upon the degree of obstruction. Applying the Saline Load Test in this clinical setting frequently aids the clinician in the differentiation of edema versus fibrosis as the primary cause of gastric outlet obstruction. The test may be repeated daily and if the etiology of the obstruction is due to edema, then the amount of residual saline aspirated will steadily decrease. If, however, the cause of the obstruction is secondary to fibrosis, then the amount of saline aspirated on successive days will essentially be unchanged. Once the differentiation between edema and fibrosis as the likely cause of gastric outlet obstruction has been made, the clinician may elect to utilize this data to aid in his future management of the patient. Goldstein and Boyle[4] found that in their series the majority of patients who maintained a constant degree of gastric retention, as evidenced by this test, eventually underwent surgical intervention for the correction of their disease and were found to have significant fibrosis and stricturing in the region of the pylorus or duodenum.

The Saline Load Test is therefore valuable in the initial diagnosis of gastric retention due to any cause and of additional value in objectively following the course of the patient's illness and his response to therapy. Additionally, the Saline Load Test has been found to be valuable in the differentiation of edema from the fibrosis of peptic ulcer disease as the primary cause of gastric outlet obstruction. Finally, this technique allows the clinician to

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Permanent Pacing For Symptomatic Bradycardia*

Joe R. Wise, Jr., M.D.

Adams-Stokes attacks are most often due to complete heart block. However, cardiac syncope can also be the result of marked slowing or arrest of the sinus pacemaker and this symptomatic bradycardia is being recognized with increasing frequency, especially in older patients.[1–7] Symptomatic sinus bradycardia is frequently episodic and between episodes both the patient and the electrocardiogram may appear completely normal. The purpose of this communication is to call attention to sinus bradycardia and sinus arrest as causes of Adams-Stokes attacks and to report our experience with six patients.

Case Material and Methods

Six patients (age range 48 to 80 years) were evaluated for syncopal episodes associated with sinus arrest and/or sinus bradycardia. Five patients had episodes of recurrent supraventricular tachycardia (Table 1). All patients had one or more episodes of syncope or near-syncope, but were not otherwise limited (Class 1). None of these patients was thought to have had a recent myocardial infarction. In all instances, sinus arrest and/or marked sinus bradycardia were observed during electrocardiographic monitoring in the coronary care unit. Three patients were taking digitalis. In two of these patients, the maintenance dose was 0.25 mgm. of digoxin daily. The third patient took digitoxin 0.1 mgm. daily. All had normal blood urea nitrogen. One patient (TW) continued to have sinus bradycardia of 48 ten days after digoxin was discontinued. Another (EK) continued to have intermittent sinus arrest two weeks after digoxin was discontinued.

Five patients required permanent transvenous ventricular pacemakers for control of syncope. Local anesthesia was used and the pacing catheter was placed in the right ventricle under fluoroscopic control. The pacing threshold and the electrical and radiographic position of the pacing catheter were determined in each instance.[8] Two patients required repositioning of the pacing catheter when the tip became displaced on the fourth postoperative day. Medical management was generally ineffective.[1–7] One patient responded to atropine and is taking Dactil.®

Discussion

The term symptomatic bradycardia refers to a group of bradyarrhythmias including sinus bradycardia, sinus arrest and sino-atrial block which are associated with symptoms of heart failure or central nervous system dysfunction. Symptomatic bradycardia may be due to either a disorder of impulse formation within the sino-atrial node (so-called "sick sinus syndome") or to defective conduction of the sinus impulse to the ventricles.

Momentary failure of impulse formation in the sinus node or sinus arrest is an unexpected interruption of the normal cardiac rhythm manifest on the electrocardiogram by failure of the P wave to appear at the anticipated time. If this sinus arrest is prolonged, a junctional or idioventricular escape rhythm usually appears (Fig. 1). If the appearance of this escape rhythm is delayed or, if the escape rate is too slow, syncope may occur (Fig. 2).

Sinus arrest cannot be separated clinically from complete sino-atrial block. In this latter disorder, the impulse is properly formed within the sinus node, but propagation through the atrium is blocked. Since the atrium is not depolarized, no P wave appears on the electrocardiogram. Sino-atrial (SA) block can be complete (third degree) or partial and is therefore analogous to atrioventricular (A-V) block. First degree SA block is clinically undetectable. Second degree SA block may cause recurrent block of alternate sinus impulses (2:1 SA block) and is clinically indistinguishable from sinus bradycardia. Transitions from second degree to third degree SA block have been recorded.[6]

Some patients with recurrent episodes of sinus bradycardia and/or sinus arrest have recurrent episodes of supraventricular tachyarrhythmia as well.[1–3] At least four of our patients with symptomatic bradycardia had intermittent episodes of supraventricular tachycardia. This combination of arrhythmias has proven very difficult to treat for drugs such as digitalis, quinidine or propanolol, given to prevent the tachyarrhythmia frequently only aggravate the bradyarrhythmia. On the other hand, atropine, isoproterenol, or ephedrine used to accelerate the bradycardia may precipitate the tachycardia.

The association of these two varied rhythms is of considerable interest. The bradyarrhythmia may in fact be responsible for the tachycardia. Han[10] has shown that slow heart rates produce a marked "temporal dispersion of myocardial infractoriness"; that is, areas of the myocardium recover or repolarize at different rates and the stage is set for re-entry or echo-type tachyarrhythmias. This same mechanism is thought to be responsible for some of the ventricular tachyarrhythmias as well.

The causes of symptomatic bradycardia are not clear. James[9] has called attention to ischemic damage of the sinus node in patients who develop atrial arrhythmias following myocardial infarction and attributed this to occlusion of the artery to the sinus node. Chronic ischemia of the SA node might likewise lead to sinus node dysfunction. Fibrosis in the region of the SA node has been demonstrated in patients with sinus node dysfunction[6] and is considered by some to be a "normal" consequence of aging.[11]

The defect in patients with symptomatic bradycardia may not be limited to the SA node, but there may be sub-clinical A-V conduction defects as well.[7] Under normal circumstances, when the sinus rate slows, a lower focus emerges and assumes pacemaker function (Fig. 1). Failure of this lower pacemaker with resultant syncope implies a "panconductional defect."[6] Using atrial pacing and direct intracardiac recordings from the region of the

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TABLE 1

CLINICAL AND ELECTROCARDIOGRAPHIC DATA

Patient		*Age*	*Sex*	*Symptoms*	*Drugs*	*ECG Prior to Pacing*	*Associated Clinical Features*
1.	DB	48	M	Syncope (2 wks)	- - - - -	SB,SA,PAC,PAT,LBBB	Mild rheumatoid arthritis
2.	AF	55	F	Syncope (years)	*	AF,SB,1°AVB, LBBB	History of rheumatic fever in childhood, not documented.
3.	TW	67	F	Syncope	Digoxin (0.25mgm.q.d.)	AF,SB,SA,JR	History of rheumatic fever in childhood, not documented. BUN 19
4.	EK	80	F	Syncope (2 mos)	Digoxin (0.25mgm.q.d.) Mellaril® (10mgm.t.i.d.) Elavil® (25 mgm. HS)	SA,JR, 1°AVB	Chronic bronchitis, mild hypertension. BUN 16
5.	ET	65	F	Dizziness near-syncope (months)	Digitalis Leaf (0.1gm.q.d.)	1°AVB,SA,JR,AF	Angina Pectoris. BUN 7
6.	GC	48	M	Syncope (6 mos)	- - - - -	SB,PAC,PAT	LVH

Abbreviations: SB—Sinus Bradycardia; SA—Sinus Arrest; PAC—Premature Atrial Contractions; PAT—Paroxysmal Atrial Tachycardia; 1°AVB—First Degree Atrioventricular Block; AF—Atrial Fibrillation; JR—Junctional Rhythm; LBBB—Left Bundle Branch Block; LVH—Left Ventricular Hypertrophy.

* Intermittent Quinidine (200 mgm.q.i.d.) and/or Lanoxin® (0.25 mgm. q.d.)

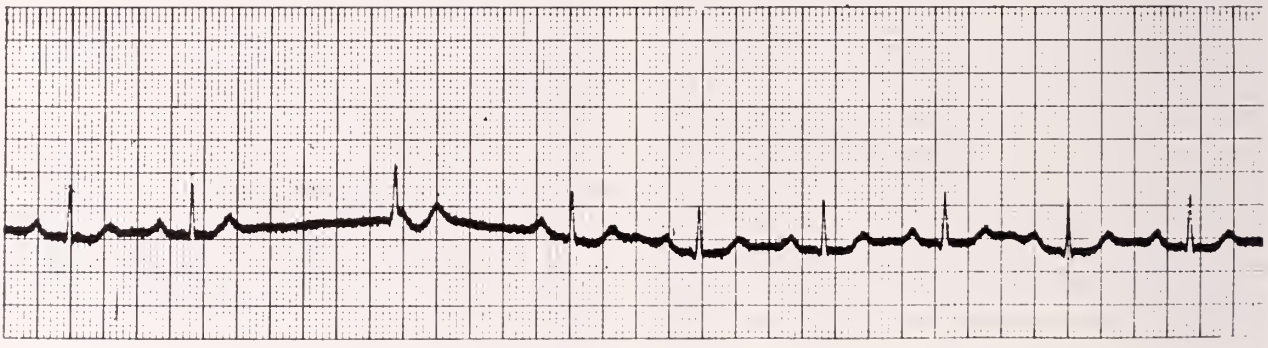


Fig. 1A. Rhythm strip from a patient with recurrent syncope. The P-wave fails to appear at the expected time after the second sinus beat. The pause is terminated by a junctional (nodal) escape beat after 0.12 seconds and subsequently sinus rhythm is restored.

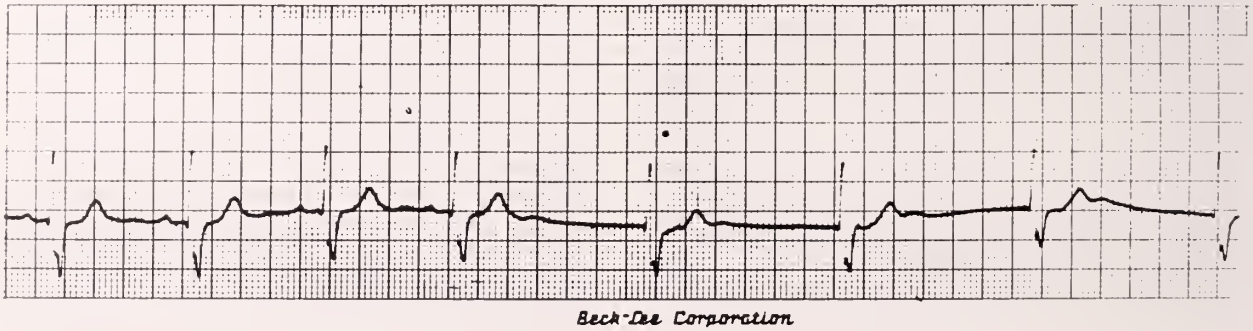


Fig. 1B. Monitor rhythm strip from a patient with recurrent sinus arrest. Sinus arrest here occurs after the fourth sinus beat and a junctional (nodal) escape rhythm of 50 beats/min. appears.

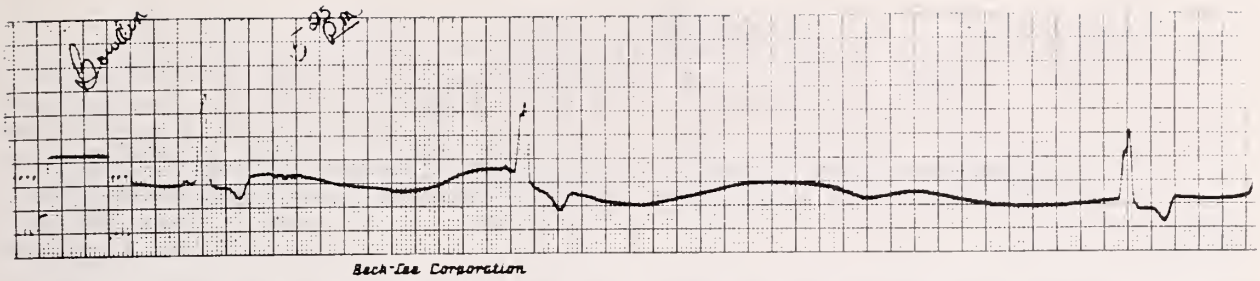


Fig. 2. Monitor rhythm strip from a patient (DB) with left bundle branch block and recurrent syncope showing initially a very slow sinus bradycardia followed by a prolonged sinus arrest. Junctional escape rhythm was delayed and did not appear for 5 seconds and syncope occurred. Sinus rhythm was present immediately before and after this episode.

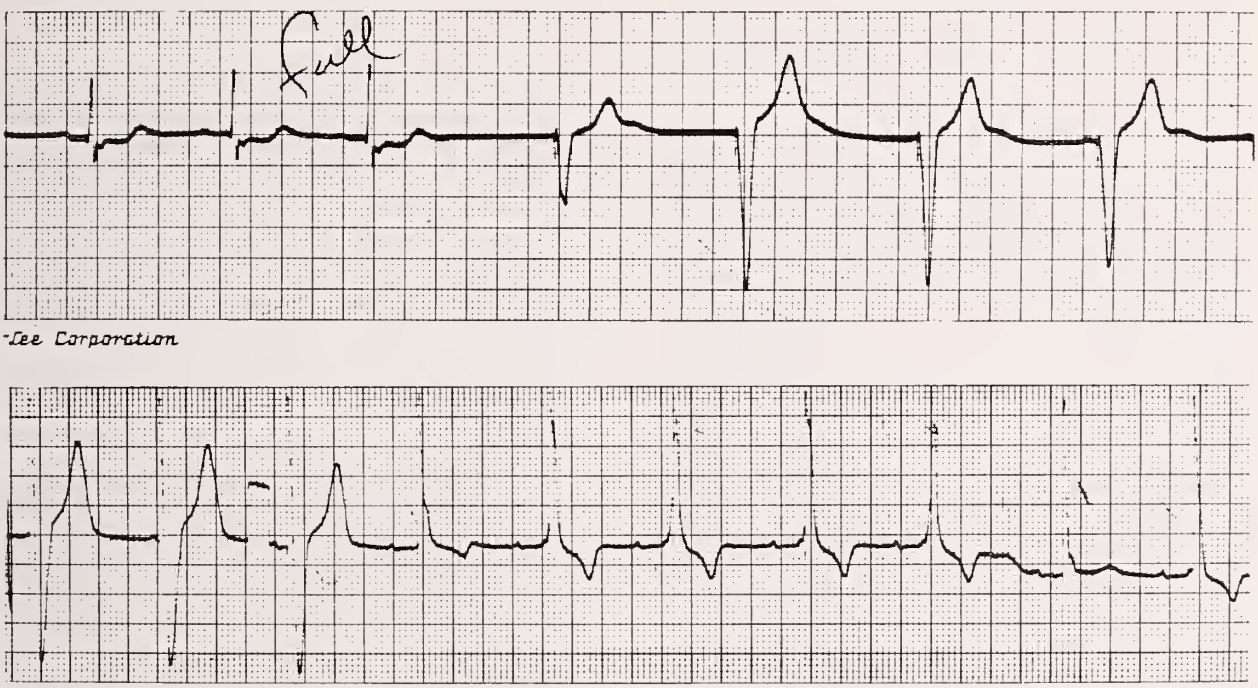


Fig. 3. Monitor rhythm strips from two patients with demand cardiac pacemakers and recurrent sinus arrest.

Upper Strip: (A) Sinus arrest occurs after the third sinus beat. The demand pacemaker responds and begins to pace the heart at a rate of 50 beats/min.

Lower Strip: (B) After 3 paced beats sinus rhythm returns, exceeds the pacemaker rate and the demand pacemaker is "turned off."

His bundle and A-V node, Rosen and his associates found that eight of their 15 patients with symptomatic sinus node disease had defective A-V conduction at heart rates below 130/min. In their patients, the conduction delay was proximal to the His bundle and probably in the A-V node. Four of ten patients tested showed prolonged periods of asystole following sudden cessation of atrial pacing, a finding which suggests generalized depression of cardiac automaticity.[7]

Symptomatic bradycardia is being seen with increasing frequency, especially in older patients.[1–7] In one series,[3] 31 of 168 patients who required a permanent pacemaker for syncope had abnormalities of supraventricular rhythm including sinus and nodal bradycardia and sinus arrest. The diagnosis of symptomatic bradycardia often depends on a high index of suspicion. The presenting complaint is usually fainting or dizziness, usually recurrent, which may or may not be associated with palpitation. In some patients, the slow heart rate may cause symptoms of congestive heart failure. The patients with symptomatic bradycardia are usually older and the differentiation from cerebrovascular disease can be difficult. The electrocardiogram may show supraventricular tachycardia, sinus bradycardia, intermittent sinus arrest or combinations of these dysarrhythmias (Table 1). In many patients, the electrocardiogram between attacks of tachycardia or sinus arrest may appear completely normal and prolonged monitoring may be necessary. This monitoring is usually done in the hospital although portable electrocardiogram recorders are available and can be used in selective cases. Quinidine, digitalis and propanolol should be discontinued since their use may foster bradyarrhythmias.

Symptomatic bradyarrhythmias can be highly variable. Syncopal attacks may be very frequent – as many as 13 per day in our patient EK – only to subside for days. It seems, however, that once syncopal attacks appear in patients with sinus node disease, they continue to recur even though the interval between them may vary. Syncope may not occur and symptoms such as dizziness, near-syncope, breathlessness and weakness may be due to simple sinus bradycardia.[12]

Rosen[7] has shown that patients with sinus node disease have a diminished response to 1 mgm. of intravenous atropine. In three of our patients, 1 mg. of intravenous atropine failed to increase the atrial rate above 70 beats/min. This atropine challenge may be of some circumstantial value in suspect patients. In many patients with bradyarrhythmia, there is also prolonged recovery of the sinus node after cessation of atrial pacing.[7]

Drug therapy alone does not often provide adequate control of the patients with symptomatic bradycardia.[1,2,5] Drugs given to prevent the bradycardia may precipitate the tachyarrhythmias. Digitalis or quinidine or propanolol given to control the tachycardia may aggravate the bradycardia and precipitate Adams-Stokes attacks.

Most authors now recommend the use of permanent electrical pacing for patients with symptomatic bradycardia.[1–7] The pacing catheters are inserted into the right ventricle transvenously under fluoroscopic control and local anesthesia. Demand or stand-by pacing units are used to avoid possible competition with the patients own rhythm (Fig. 3). In view of the frequency of associated A-V conduction defects and the technical difficulties with maintaining atrial pacing, right ventricular rather than atrial pacing is preferred. In some patients, drugs are required to control subsequent episodes of supraventricular tachyarrhythmia, but, in the presence of a pacemaker, these drugs can be given without fear of producing bradycardia and Adams-Stokes attacks. Five of our patients with symptomatic bradycardia have required pacing. Although the follow-up periods are short (6-18 months), none of these patients has had a subsequent episode of syncope.

Conclusion

Adams-Stokes attacks may be produced by transient sinus arrest or bradycardia due to sinus node dysfunction or sino-atrial block. Since the sinus arrest is intermittent, monitoring is frequently required to detect it. In addition to the bradyarrhythmia, many of these patients have episodes of supraventricular tachycardia as well. Between these episodes of bradycardia/tachycardia, the resting electrocardiogram may be normal. Drugs alone are often of little value in controlling these arrhythmias and permanent transvenous pacing is required. Symptomatic bradycardia is less common than A-V block but it must be considered in the evaluation of patients with dizziness and syncope.

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Acute Aortic Regurgitation in Patients With Infective Endocarditis

The Distinctive Clinical Features and the Role of Premature Mitral Valve Closure

Joe R. Wise, Jr., M.D.,* C. M. Oakley, M.D., F.R.C.P.** and J. F. Goodwin, M.D., F.R.C.P.***

Since the introduction of antibiotic agents, the most common cause of death in patients with infective endocarditis is no longer persistent infection, but heart failure.[1] The cause of the heart failure is most often destruction of the aortic valve with sudden, severe aortic regurgitation.[2] The extent of the regurgitation is often not appreciated, however, because the signs of acute regurgitation may be quite different from the expected familiar signs of chronic regurgitation.[3] The heart failure, therefore, may be erroneously attributed to "myocarditis" and surgical treatment is delayed. The case described below illustrates the confusion and attendant delay caused by the sudden appearance of aortic regurgitation in a patient with infective endocarditis.

Case Report

J. H., a 28-year-old civil engineer, was admitted with a 12-week history of headache, fever, and sweats. During this time, he had been given a five-day course of Penicillin and a three-week course of Tetracycline. Each time the fever had responded temporarily but subsequently reappeared. There was no history of heart disease.

At that initial admission, he was toxic, with a temperature of 102. The pulse was collapsing and the blood pressure was 120/50. There was a loud diastolic murmur at the left sternal edge and the spleen was palpable. Blood cultures grew S. viridans. Penicillin and Streptomycin were given and he responded initially but in the fourth week he suddenly developed left ventricular failure with orthopnea and dyspnea at rest. At this point, it was noted that his aortic diastolic murmur was "quieter than formerly and his aortic regurgitation seemed to be improving but he was getting worse." He was referred for evaluation.

He arrived pale, toxic and dyspneic at rest. Pulse was 120 and collapsing. Blood pressure was 110/50. There were soft systolic and diastolic murmurs along the left sternal border and rales in the lungs. There was finger clubbing. The Hgb. was 10.0 mgs., WBC 16,000, Na 125 mEq/L, K 3.5 mEq/L, Cl 85 mEq/L, CO_2 23 mEq/L, BUN 80 mgm.%.

He remained in pulmonary edema despite intensive medical therapy and six days later he had aortic valve replacement with a Starr-Edward prosthesis. The aortic valve was tricuspid. There were vegetations on all leaflets with almost complete destruction of the valve.

Comment

As the aortic regurgitation became worse and the cardiac output failed, the signs of regurgitation became less prominent. Failure to recognize this caused an unnecessary delay of his surgery.

Discussion

Physical Signs:

The clinical differences between acute and chronic aortic regurgitation depend both on the duration of the regurgitation and on its severity. One of the major differences is that the classical peripheral signs of chronic regurgitation may be absent when the regurgitation is acute. In long standing aortic regurgitation, the left ventricle has had time to dilate and hypertrophy. When the regurgitation occurs suddenly, however, the capacity of the "unprepared" left ventricle is exceeded and the end-diastolic pressure in left ventricle rises steeply.[4,5] Since, with aortic regurgitation, there is no effective aortic valve, the pressure in the left ventricle and aorta rapidly equalize before the end of diastole. Therefore, in acute aortic regurgitation, when the left ventricular end diastolic pressure is very high, the diastolic blood pressure, as measured peripherally, may not fall to zero but is maintained since it can fall no lower than the elevated pressure within the left ventricle. In addition, the intense peripheral construction which accompanies the low forward cardiac output contributes to the maintenance of the diastolic blood pressure. Because the cardiac output is low, the systolic blood pressure may be low also. The result is that the pulse pressure, in acute, total aortic regurgitation may be narrow rather than wide and the familiar peripheral signs of chronic regurgitation which are dependent upon a wide amplitude, water hammer pulse will be absent.

Auscultation:

When the aortic regurgitation is long standing, the usual relationship between the cardiac cycles is preserved, diastole is longer than systole and it is this familiar audible cadence that serves to identify the two periods. When aortic regurgitation occurs suddenly, the left ventricular diastolic pressure rises so rapidly that the normal pressure difference between left ventricle and left atrium is reversed in diastole, the pressure in the left ventricle becomes higher than the pressure in the left atrium and the mitral valve is closed, not by ventricular systole but prematurely. This premature mitral valve closure is re-

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sponsible for the distinctive auscultatory features of acute aortic regurgitation.

When the mitral valve is closed prematurely by the rapid rise in left ventricular pressure, diastole is foreshortened, systole becomes longer than diastole and it becomes difficult to distinguish systole from diastole by auscultation alone. Confusion can arise, therefore, about the timing of the murmur. This confusion is accentuated by the tachycardia which is invariably present and by prolonged ventricular ejection which delays closure of the aortic valve (Fig. 1). In addition, since the mitral valve is already closed at the time of ventricular systole, the first heart sound is faint or absent.[6] Therefore, in patients with aortic regurgitation, when it becomes difficult by auscultation alone to distinguish with certainty systole and diastole, premature closure of the mitral valve may be responsible for this difficulty.

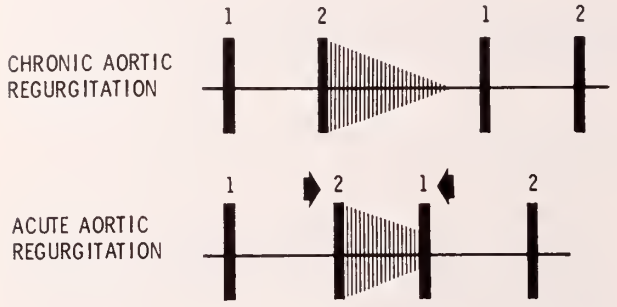


Fig. 1. Graphic demonstration of the shortened diastole in acute aortic regurgitation produced by premature mitral valve closure (←) and delayed aortic valve closure (→). 1 — first heart sound. 2 — second heart sound (see text).

Echocardiography:

Premature closure of the mitral valve can be demonstrated by echocardiography.[7] This instrument uses sound waves reflected from the valve surface to detect and time movements of the anterior mitral valve leaflet.[8,9] In this

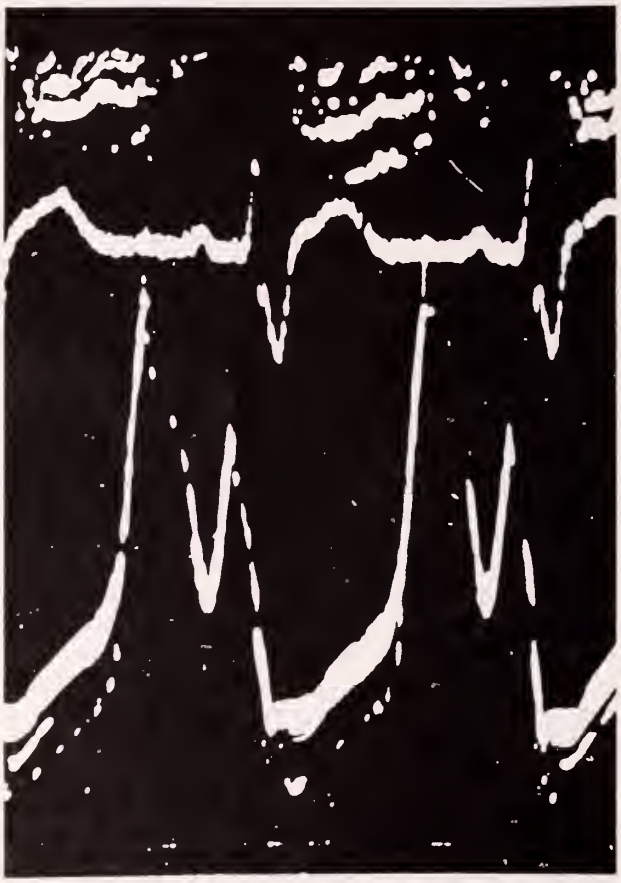


Fig. 2A

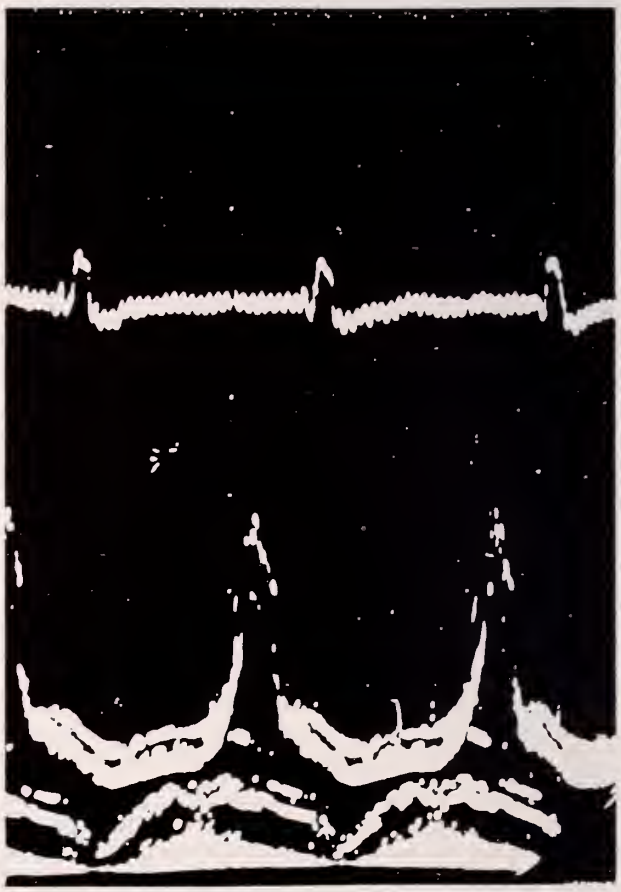


Fig. 2B

Fig. 2. Echocardiogram from a normal subject (A) and a patient with acute aortic regurgitation (B). The upper tracing in each case is the EKG. The lower tracing shows the echocardiographic movements of the mitral valve. The sharp upward movement is mitral opening and the downward movement is mitral valve closure. Normally (A) the mitral valve is closed just after the beginning of electrical systole. In the patient with acute aortic regurgitation (B), the mitral valve is closed before ventricular systole, as marked by the EKG (see text).

Continued on Page 275



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Indicates estrogen excess.

1st choice: Switch to a combination 50-mcg.-estrogen O.C. (such as **Demulen**®).

Age 19, small breasts, minor hirsutism, oily hair and skin. History of metrorrhagia, skipped or scanty menses. New user.

Indicates androgenic excess or estrogen deficiency (fertility is suspect).

1st choice: An estrogen-dominant O.C. (such as **Enovid-E**®).

Age 25, average frame, poor complexion. No problem with menses, normal para 1. On a low-estrogen/high-progestogen O.C. for two years. Now complains of scanty flow, decreased libido, depression.

Indicates probable buildup of progestogen-related side effects.

1st choice: Switch to a center-spectrum O.C. with more estrogen, less progestational activity (such as **Ovulen**®).

Age 21, short, mammose, with normal menses, some acne. Was put on prenuptial regimen of 50-mcg.-estrogen/moderate-progestogen O.C. for two months. Now has increased acne.

Indicates metabolic production of androgen or relative estrogen deficiency.

1st choice: Switch to a 100-mcg.-estrogen combination (such as **Enovid-E**® or a sequential).



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*Note: In some patients any level of exogenous estrogen or progestogen may produce symptoms of excess hormone activity.

Age 25, tall, slender, athletic, with flat chest. On a progestogen-dominant 50-mcg.-estrogen O.C. Has recurrent trichomoniasis and Monilia.

Indicates estrogen deficiency and excess of progestogen in current O.C.

1st choice: Switch to a combination pill with 100 mcg. estrogen and less progestational activity (such as **Enovid-E*** or **Ovulen*** or a sequential).

Age 23, "Miss America" figure, previously normal menses, healthy skin and hair. On a 50-mcg.-estrogen pill for four months. Complains of intracyclic bleeding.

Indicates probable need for more estrogen.

1st choice: Switch to a center-spectrum O.C. with more estrogen and moderate progestogen dominance (such as **Ovulen***).

Age 21, college senior, average build. On highly progestogen-dominant/low-dose-estrogen O.C. for six months. Now complains of amenorrhea, between-cycle headaches, weight gain.

Indicates probable progestogen excess.

1st choice: Switch to a center-spectrum pill (such as **Ovulen***).

Age 27, slightly overweight, multiparous. Nausea with all three pregnancies and with a sequential O.C. three years ago. Has premenstrual fluid retention and leg cramps.

Indicates probable excess of estrogen.

1st choice: A 50-mcg.-estrogen/progestogen-dominant pill (such as **Demulen***).



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Actions—Ovulen and Demulen act to prevent ovulation by inhibiting the output of gonadotropins from the pituitary gland. Ovulen and Demulen depress the output of both the follicle-stimulating hormone (FSH) and the luteinizing hormone (LH).

Special note—Oral contraceptives have been marketed in the United States since 1960. Reported pregnancy rates vary from product to product. The effectiveness of the sequential products appears to be somewhat lower than that of the combination products. Both types provide almost completely effective contraception.

An increased risk of thromboembolic disease associated with the use of hormonal contraceptives has now been shown in studies conducted in both Great Britain and the United States. Other risks, such as those of elevated blood pressure, liver disease and reduced tolerance to carbohydrates, have not been quantitated with precision.

Long-term administration of both natural and synthetic estrogens in subprimate animal species in multiples of the human dose increases the frequency of some animal carcinomas. These data cannot be transposed directly to man. The possible carcinogenicity due to the estrogens can be neither affirmed nor refuted at this time. Close clinical surveillance of all women taking oral contraceptives must be continued.

Indication—Ovulen and Demulen are indicated for oral contraception.

Contraindications—Patients with thrombophlebitis, thromboembolic disorders, cerebral apoplexy or a past history of these conditions, markedly impaired liver function, known or suspected carcinoma of the breast, known or suspected estrogen-dependent neoplasia and undiagnosed abnormal genital bleeding.

Warnings—The physician should be alert to the earliest manifestations of thrombotic disorders (thrombophlebitis, cerebrovascular disorders, pulmonary embolism and retinal thrombosis). Should any of these occur or be suspected the drug should be discontinued immediately.

Retrospective studies of morbidity and mortality conducted in Great Britain and studies of morbidity in the United States have shown a statistically significant association between thrombophlebitis, pulmonary embolism, and cerebral thrombosis and embolism and the use of oral contraceptives. There have been three principal studies in Britain[1-3] leading to this conclusion, and one[4] in this country. The estimate of the relative risk of thromboembolism in the study by Vessey and Doll[3] was about sevenfold, while Sartwell and associates[4] in the United States found a relative risk of 4.4, meaning that the users are several times as likely to undergo thromboembolic disease without evident cause as nonusers. The American study also indicated that the risk did not persist after discontinuation of administration and that it was not enhanced by long-continued administration. The American study was not designed to evaluate a difference between products. However, the study suggested that there might be an increased risk of thromboembolic disease in users of sequential products. This risk cannot be quantitated, and further studies to confirm this finding are desirable.

Discontinue medication pending examination if there is sudden partial or complete loss of vision, or if there is a sudden onset of proptosis, diplopia or migraine. If examination reveals papilledema or retinal vascular lesions medication should be withdrawn.

Since the safety of Ovulen and Demulen in pregnancy has not been demonstrated, it is recommended that for any patient who has missed two consecutive periods pregnancy should be ruled out before continuing the contraceptive regimen. If the patient has not adhered to the prescribed schedule the possibility of pregnancy should be considered at the time of the first missed period.

A small fraction of the hormonal agents in oral contraceptives has been identified in the milk of mothers receiving these drugs. The long-range effect to the nursing infant cannot be determined at this time.

Precautions—The pretreatment and periodic physical examinations should include special reference to the breasts and pelvic organs, including a Papanicolaou smear since estrogens have been known to produce tumors, some of them malignant, in five species of subprimate animals. Endocrine and possibly liver function tests may be affected by treatment with Ovulen or Demulen. Therefore, if such tests are abnormal in a patient taking Ovulen or Demulen, it is recommended that they be repeated after the drug has been withdrawn for two months. Under the influence of progestogen-estrogen preparations preexisting uterine fibromyomas may increase in size. Because these agents may cause some degree of fluid retention, conditions which might be influenced by this factor, such as epilepsy, migraine, asthma, cardiac or renal dysfunction, require careful observation. In breakthrough bleeding, and in all cases of irregular bleeding per vaginam, nonfunctional causes should be borne in mind. In undiagnosed bleeding per vaginam adequate diagnostic measures are indicated. Patients with a history of psychic depression should be carefully observed and the drug discontinued if the depression recurs to a serious degree. Any possible influence of prolonged Ovulen or Demulen therapy on pituitary, ovarian, adrenal, hepatic or uterine function awaits further study. A decrease in glucose tolerance has been observed in a significant percentage of patients on oral contraceptives. The mechanism of this decrease is obscure. For this reason, diabetic patients should be carefully observed while receiving Ovulen or Demulen therapy. The age of the patient constitutes no absolute limiting factor, although treatment with Ovulen or Demulen may mask the onset of the climacteric. The pathologist should be advised of Ovulen or Demulen therapy when relevant specimens are submitted. Susceptible women may experience an increase in blood pressure following administration of contraceptive steroids.

Adverse reactions observed in patients receiving oral contraceptives—A statistically significant association has been demonstrated between use of oral contraceptives and the following serious adverse reactions: thrombophlebitis, pulmonary embolism and cerebral thrombosis.

Although available evidence is suggestive of an association, such a relationship has been neither confirmed nor refuted for the following serious adverse reactions: neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis.

The following adverse reactions are known to occur in patients receiving oral contraceptives: nausea, vomiting, gastrointestinal symptoms (such as abdominal cramps and bloating), breakthrough bleeding, spotting, change in menstrual flow, amenorrhea during and after treatment, edema, chloasma or melasma, breast changes (tenderness, enlargement and secretion), change in weight (increase or decrease), changes in cervical erosion and cervical secretions, suppression of lactation when given immediately post partum, cholestatic jaundice, migraine, rash (allergic), rise in blood pressure in susceptible individuals and mental depression.

Although the following adverse reactions have been reported in users of oral contraceptives, an association has been neither confirmed nor refuted: anovulation post treatment, premenstrual-like syndrome, changes in libido, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, fatigue, backache, hirsutism, loss of scalp hair, erythema multiforme, erythema nodosum, hemorrhagic eruption and itching.

The following laboratory results may be altered by the use of oral contraceptives: hepatic function: increased sulfobromophthalein retention and other tests; coagulation tests: increase in prothrombin, Factors VII, VIII, IX and X; thyroid function: increase in PBI and butanol extractable protein bound iodine, and decrease in T^3 uptake values, metyrapone test and pregnanediol determination.

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Indication—Enovid-E is indicated for oral contraception.

The *Special Note, Contraindications, Warnings, Precautions* and *Adverse Reactions* listed above for Ovulen and Demulen are applicable to Enovid-E and should be observed when prescribing Enovid-E.

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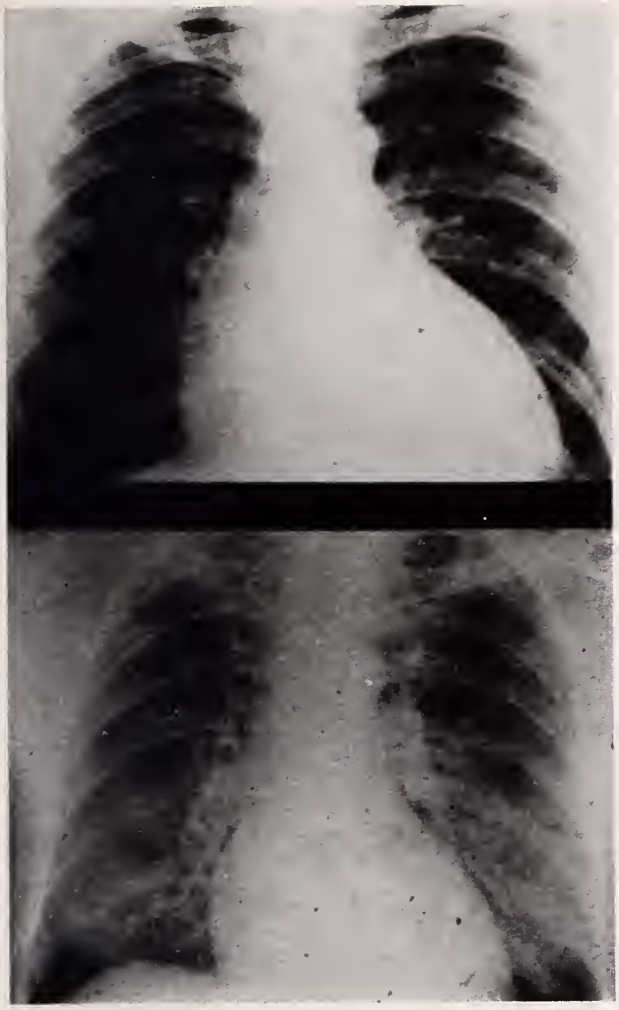


Fig. 3. PA chest x-ray of a patient with chronic aortic regurgitation (UPPER) and acute aortic regurgitation (LOWER). Note absence of significant cardiomegaly in the patient with acute aortic regurgitation.

way, premature mitral valve closure can be confirmed by a non-invasive technique. Normally the mitral valve closes immediately after the onset of ventricular systole. However, when sudden, severe aortic regurgitation raises the left ventricular end diastolic pressure very rapidly, the mitral valve is closed prematurely and this closure can be seen on the echocardiogram to occur well before the onset of electrical systole (Fig. 2).

X-ray and Electrocardiogram:

In patients with acute aortic regurgitation, since there has been little time for the development of left ventricular hypertrophy or dilatation, the heart shadow on radiography may be near normal size. This contrasts with the very large heart shadow usually seen in patients with long standing regurgitation (Fig. 3). The electrocardiogram is also deceptive for there may be no evidence of left ventricular hypertrophy when the regurgitation is acute (Fig. 4).

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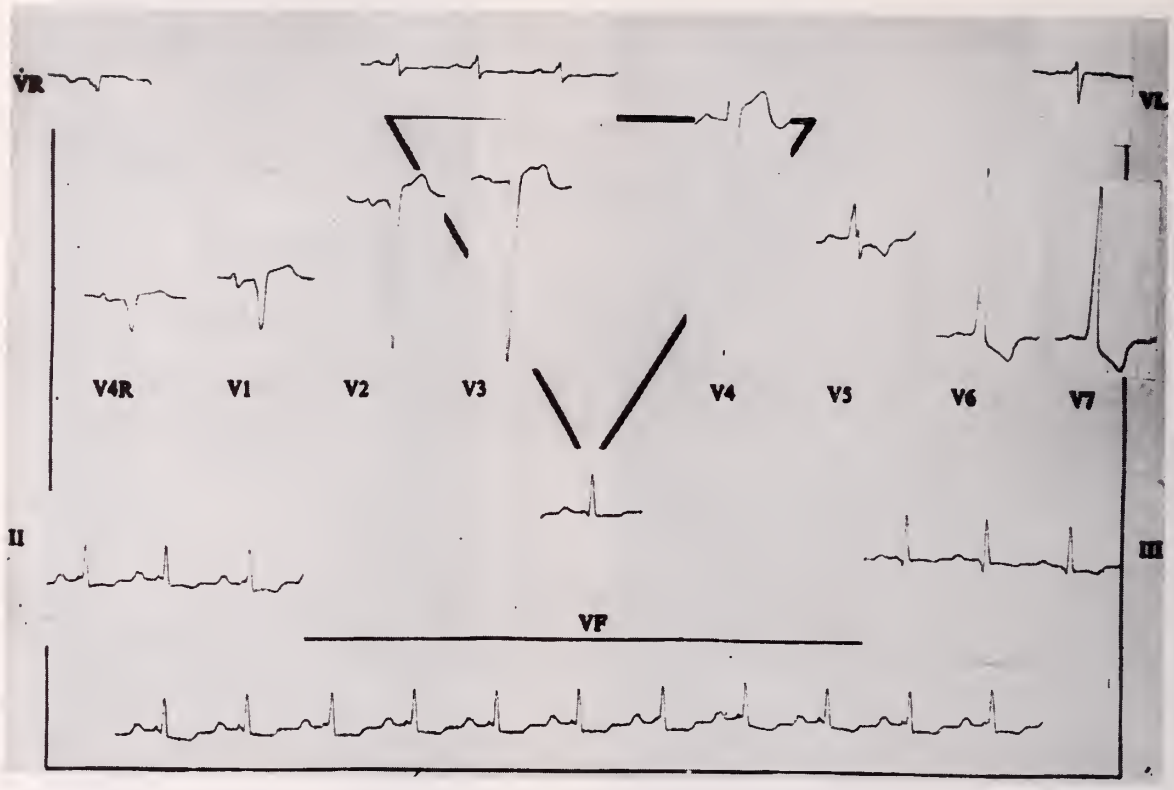


Fig. 4A

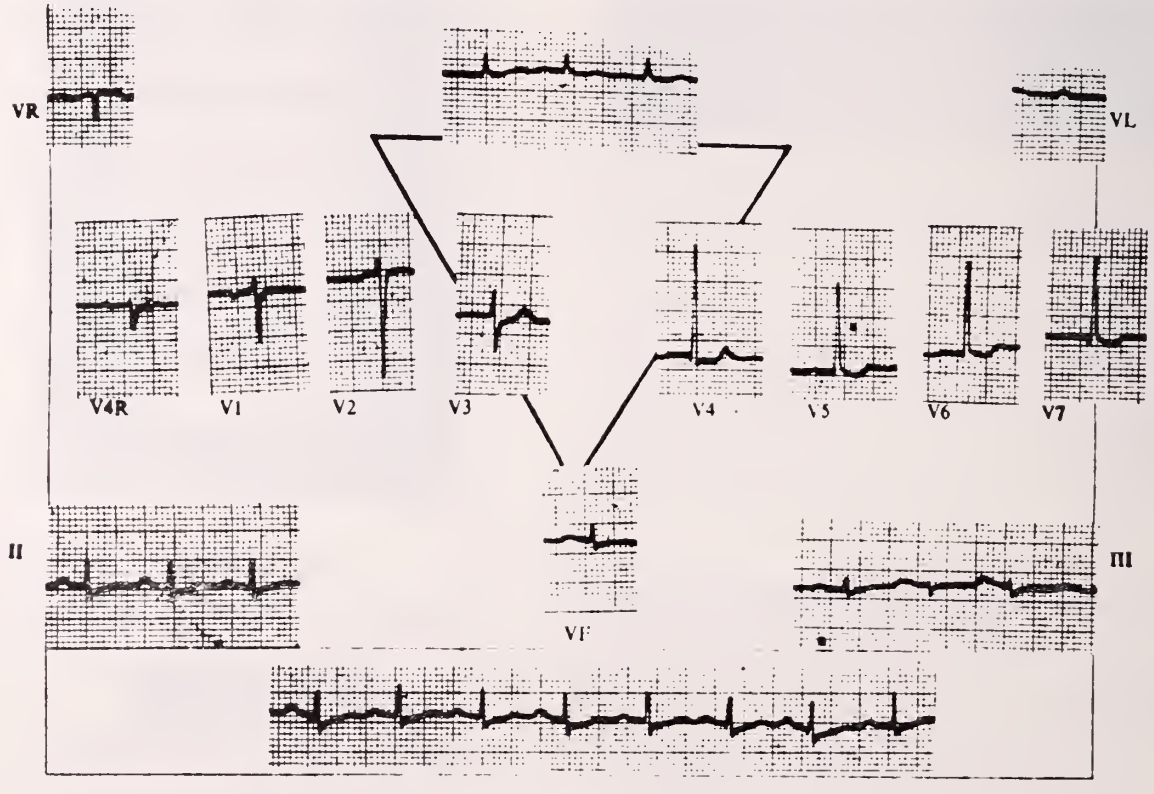


Fig. 4B

Fig. 4. Electrocardiogram from a patient with chronic aortic regurgitation (A) and a patient with infective endocarditis and acute aortic regurgitation (B) (see text).

Pathology:

The destruction of the valve is usually extensive in patients with acute aortic regurgitation due to endocarditis and in almost all cases there is perforation of one or all of the valve leaflets.[10] In some patients, the valves involved have been previously damaged by rheumatic fever, but often there is no evidence of previous valve disease. In one series,[3] at the time of the endocarditis, nine of the ten patients studied had no knowledge of previous heart disease. Four of these nine patients had infection, on apparently normal heart valves. The remaining five patients had congenital bicuspid aortic valves but had been previously asymptomatic and had no knowledge of it.

The infection frequently extends off the surface of the aortic valve leaflets and into the interventricular septum where abscesses develop. The abscesses in the septum are associated with conduction defects which may present initially as prolonged P-R interval. In some patients, the heart block can become complete and pacing is required. The development, therefore, of even first degree heart block is the course of aortic valve endocarditis is an ominous sign and suggests that the infection has extended into the septum.

Microbiology:

Although valve destruction is usually extensive, the organisms recovered are those usually encountered in endocarditis and are not necessarily organisms known to be especially virulent or destructive. Although coagulase positive staphylococci and Streptococcus fecalis can cause rapid valve destruction, the majority of the organisms recovered from patients requiring urgent valve replacement are organisms which are generally associated with a more indolent course. Cohen, Stason and others have pointed out that the organisms responsible for the acute regurgitation were often not highly virulent strains and stressed how frequently Streptococcus viridans was involved.[2,11] Even relatively low grade organisms such as Coxiella (Rickettsieae) can lead to sudden valve failure and development of a critical circulatory state.[3,12] It is, after all, the acute rupture of the valve, the sudden appearance of a perforation or tear that is significant, and this does not necessarily imply infection with an organism of special virulence or one generally associated with an "acute" course. Nor on the other hand does the recovery of an organism of relatively low virulence imply that subsequent valve perforation and heart failure might not occur suddenly and interrupt what might otherwise seem to be a relatively "sub-acute" course.

Surgery:

In spite of the success of valve replacement in other conditions, there has been a general reluctance to operate on these patients with active endocarditis, even when heart failure is life threatening. However, recent experience[13–21] has emphasized not only the relative safety but also the occasional necessity of aortic valve replacement in infective endocarditis before treatment of the infec-



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Table 1

Aortic Valve Replacement
Active Infective Endocarditis

Series	Number of Patients	Treatment Prior To Surgery (Average)	Mortality
Shumway et al (1967)[13]	5	26 days	0
Austen et al (1968)[11]	7	29 days	14%
Hatcher et al (1969)[14]	4	28 days	25%
Kretchmer et al (1969)[15]	15*	—	30%*
Hutter et al (1970)[16]	7	28 days	14%
Wise et al (1971)[3]	10	45 days	40%

*Review

tion has been completed and the results have been encouraging (Table 1).

Many patients with endocarditis and heart failure have had valve replacement after receiving only a few days of antibiotic therapy and many have had clinical evidence of active infection – i.e., fever, anemia, heart block, elevated sedimentation rate – at the time of surgery. These emergency valve replacements appear to be well tolerated provided effective antibiotic therapy is continued and with few exceptions[11] neither dehiscence of the valve nor persistent infection has been a problem.

In general, survival of these patients with urgent aortic valve replacements is most dependent upon their preoperative condition. Those patients with severe circulatory failure for an extended period do not survive, whereas the patients who come to surgery in better condition tolerate the surgery well.[3,13–21] For some patients, the duration of medical treatment prior to surgery is relatively long and this delay may in part be responsible for their higher mortality rate.[3] Earlier referral for surgery, before irreversible circulatory deterioration, would be expected to reduce the mortality of these emergency operations.

Conclusion

When patients with endocarditis develop heart failure, the failure is most likely due to acute aortic regurgitation, rather than a non-specific "myocarditis." Because the "classical signs are often distorted, the presence of aortic regurgitation can be missed altogether when it is acute, or if detected, the severity may be underestimated. If, in this situation, the heart size is near normal, if the EKG is near normal, if there are no peripheral signs of regurgitation, if a previously recognized aortic regurgitant murmur is getting softer . . . this may mean that the regurgitation is severe rather than mild. This impression can be confirmed with echocardiography.

Early valve replacement should be considered for patients with infective endocarditis who develop life-threatening heart failure due to valve insufficiency. In these cases, surgery need not be delayed for completion of the course of antibiotics, since this delay may result in irreversible hemodynamic deterioration.

Acknowledgments

Our thanks to Mr. H. H. Bentall and Mr. W. P. Cleland for allowing us to report their surgical results and to Dr. Ramsey Benham for performing the echocardiograms.

This work was performed during Dr. Wise's tenure as a Mead-Johnson Residency Scholar in the Clinical Cardiology Division, Royal Postgraduate Medical School, Hammersmith Hospital, London.

Presented in part before the sixty-fourth annual general meeting of The Association of Physicians of Great Britain and Ireland, April 10, 1970.

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ADAMS-STOKES ATTACKS DUE TO PAROXYSMAL VENTRICULAR TACHYCARDIA

Continued from Page 267

a simple diagnostic sign in patients with ventricular tachycardia.[6] When ventricular tachycardia is present, the atria and the ventricles beat independently (Fig. 1). The ventricular beats which are preceded by an atrial contraction produce a higher arterial pressure and a more prominent arterial pulse. This variation in pulse can often be detected at the bedside and confirmed by measuring the beat to beat variation in blood pressure. The blood pressure cuff is inflated to occlude the brachial pulse and slowly released until the Karotkoff sounds are first heard. With the cuff pressure maintained at this level, Karotkoff sounds will be heard irregularly and correspond to the stronger ventricular beats which are preceded by an appropriately timed atrial contraction which contributes to ventricular filling. This varying relation between the independent atrial and ventricular contractions also accounts for the variation in the intensity of the first heart sound which has been described in ventricular tachycardia.[7]

Summary

Cardiac arrhythmias may account for a variety of central nervous system symptoms. The offending arrhythmia may be one of several types. Treatment and prevention of the various arrhythmias is often quite different and specific identification of the arrhythmia is necessary. Since many of these arrhythmias are paroxysmal or intermittent, prolonged electrocardiographic monitoring may be required for their demonstration. A portable electrocardiographic recorder may be particularly useful in ambulatory patients.

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U.S.-SOVIET HEALTH CARE AGREEMENT

Citizens of the Union of Soviet Socialist Republics who are study visitors to the United States under the recently signed USA/USSR "Agreement for Health Cooperation" will receive full health care coverage through the national Blue Cross and Blue Shield systems. Some 150 Soviet citizens will be covered during the first year of the program, effective this month.

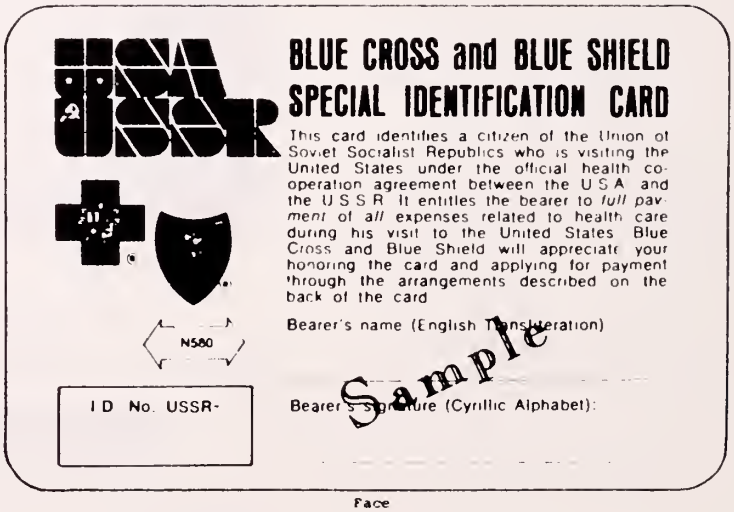
The USA/USSR Agreement for Health Cooperation, a new step forward in international relations, was created by the Ministry of Health of the USSR and the U.S. Department of Health, Education, and Welfare, and was signed by President Richard M. Nixon during his Moscow visit in May.

As part of the pact, all emergency and ongoing health care expenses which the Soviet visitors incur while in this country will be fully reimbursed. Reciprocally, American study visitors to the USSR will have their health expenses covered while there.

In seeking a system for implementing the terms of the pact, HEW turned to Blue Cross and Blue Shield, both of whose national scope will help expedite payment of the visitors' health care claims.

The metropolitan Washington, D.C. area Blue Cross and Blue Shield Plans working with the national associations (Blue Cross Association and National Association of Blue Shield Plans) created a program for coverage nationwide. The two Plans in D.C. will underwrite and administer the program.

The program is unique in that all health care expenses will be fully reimbursed. Special identification cards and claim forms have been created. The ID card, illustrated below, will be red, white, and blue. The study visitors' documents give full instructions to physicians and hospitals for filing claims.



Face

Maine Heart Association Notes
20 Winter Street, Augusta, Maine

Clinical Application of Two New Non-Invasive Cardiovascular Techniques

Thomas M. Kazamias, M.D.*

Reliable, non-invasive methods for cardiovascular evaluation are of increasing value. Recently two such techniques have been developed which are useful in the management of acutely ill patients:

1. The Doppler Ultrasonic Flowmeter for measurement of blood pressure and,
2. Radarkymography for evaluating cardiac wall motion.

I. The Doppler Ultrasonic Flowmeter in Blood Pressure Measurement

Briefly, this system consists of a transducer with two piezo-electric crystals. The transducer is placed on the skin overlying an artery. One crystal emits a 10 megacycle sound through the arterial wall into the blood stream, the other records ultrasound reflected by moving red cells. Since the red cells are in motion, the frequency of the reflected sound differs from that of the emitted sound and the difference is proportional to red cell velocity (hence blood flow).

To measure blood pressure, the Doppler transducer is placed over the radial artery. Proximal to this, flow is interrupted at the level of the brachial artery with a conventional blood pressure inflatable cuff. The pressure in the cuff is recorded simultaneously with the Doppler signal. When cuff pressure exceeds systolic pressure, blood flow in the underlying artery ceases and no Doppler signal is recorded. Gradual deflation of the cuff causes a drop in cuff pressure until at systolic arterial pressure the vessel opens partially and blood flow commences. Thus, ultrasound hits *moving* red cells and the first signal is heard. The level of the pressure in the cuff at which the first signal is noted records the level of the systolic blood pressure. As the cuff is further deflated, a point is reached when the flow in the underlying artery becomes continuous. That level of cuff pressure at which the flow becomes continuous, diastolic pressure, is apparent on the Doppler signal recordings as the signal that remains above zero throughout systole and diastole.

When systolic blood pressure determinations with the Doppler flowmeter are compared with intra-arterial values, results are closely correlated. Over a wide range of systolic arterial pressures (48 — 144 mm Hg) in 65 measurements, the correlation coefficient was .99, and the maximum difference in values obtained with the Doppler method were 4 mm Hg above and 10 mm Hg below values obtained with the direct method.

When diastolic measurements are obtainable and compared with those obtained with the intra-arterial needle, the correlation is also excellent. Over a wide range of pressures (34 — 87 mm Hg), the correlation coefficient was 0.95, and the average difference between the two methods was 1.8 mm Hg.

The Doppler ultrasonic method for blood pressure determination has been of greatest clinical value in monitoring blood pressure accurately and atraumatically in acutely ill patients such as those in shock. Accurate Doppler measurements were obtained even when blood pressure could not be assessed conventionally by palpation or auscultation because of severe vasoconstriction. In addition to its accuracy, the Doppler method has the advantage of providing a signal which can be telemetered, recorded and made audible at the bedside. It tends to obviate observer bias, known to influence apparent blood pressure measurements by sphygmomanometry at lower levels of pressure.

The Doppler ultrasound method has been of recent value in analyzing the pulse contour in patients with myocardial or pericardial disease. In 3 patients with left ventricular dysfunction, *pulsus alternans* was successfully recorded whereas in 2 other patients with pericardial disease *pulsus paradoxus* was recorded. The Doppler method is useful in infants and in obese subjects in whom conventional methods may be inapplicable. In addition, it is of considerable value in evaluating blood pressure and flow in the lower extremities of patients with arterial occlusive disease both before and after reconstructive surgery.

II. Radarkymography in Evaluating Left Ventricular Wall Motion

Radarkymography is an electronic process by which the pulsations of the cardiac silhouette, visualized on a television screen, can be recorded reliably. The radarkymograph utilizes a radar loop similar to the one used to track missiles. The fluoroscopic image of the heart is projected on a television screen. As the heart pulsates, the image of the cardiac border presents a constant transition from dark to light (the cardiac silhouette being more opaque than the adjacent lung). This transition is translated in-

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Prepared by the Maine Heart Association for this Journal.

to a voltage peak onto which an electronic tracker locks and follows the image of the heart. As the heart contracts in systole, the image of the lateral wall of the left ventricle moves medially. This motion is translated into an analog signal as a downward deflection (s wave). During ventricular filling in diastole, the wall of the left ventricle moves laterally. This lateral motion is recorded as an upward deflection (d wave). At the beginning of ventricular systole, the heart rotates and the shape of the left ventricle changes to a more spherical one. This creates an initial outward motion of the left ventricle and it is recorded as an initial upward wave (a wave). Thus, during a cardiac cycle three distinct waves are recorded: the a,s, and d waves. The ECG is used as a reference tracing. When the radarkymograph tracker is positioned on selected parts of the silhouette, cardiac pulsations can be recorded from specific portions of the heart and great vessels. During ventricular systole, the ejected blood distends the aorta which moves laterally; this movement is recorded as an upward deflection on the radarkymogram. During diastole when the aortic wall moves medially, the radarkymogram records a downward deflection. Tracings from sites of myocardial injury often reveal paradoxical pulsation. Thus, the radarkymogram shows complete reversal of the direction of the waves in systole and diastole.

Since left ventricular wall motion abnormalities interfere with normal cardiac function and may be an important cause of heart failure, their detection and localization are important. When 32 patients with chronic coronary artery disease with or without *old* myocardial infarction were studied, paradoxical pulsations were demonstrated in 89%. In contrast, fluoroscopy (a technique widely used to localize asynergism of contraction of the left ventricular wall) detected asynergistic areas in only 61%.

Radarkymography has been of greatest practical value in the diagnosis and follow-up of patients with acute myocardial infarction. Paradoxical pulsations of the infarcted myocardial wall are often detectable on the radarkymogram within 30 minutes after the onset of symptoms, and localization of the involved area of the heart is often possible.

In 34 of 45 patients (76%) with acute myocardial infarction, paradoxical pulsations of the left ventricular wall were recorded by means of radarkymography. These abnormalities were followed serially for periods up to 16 months. Of the 34 patients who originally demonstrated paradoxical pulsation, 10 (30%) died within 24 hours to 6 months following acute myocardial infarction, 14 (41%) retained their paradoxical pulsation, 3 showed akinesis, 3 showed hypokinesis and 4 regained their normal pulsations. Of the 15 patients in whom paradoxical pulsations were either never present or in whom paradoxical pulsations disappeared during the follow-up period, only one patient expired. Thus, radarkymography is not only of clinical importance in detecting wall motion disorder in coronary artery disease but it also serves as a prognostic index. It is superior to standard fluoroscopy if only because it is more independent of subjective interpretation. Furthermore, since it is non-invasive, it is easily adaptable to acutely ill patients such as those with acute myocardial infarction.

Summary

The Doppler ultrasonic flowmeter is an effective and reliable atraumatic device by which blood pressure determinations can be obtained accurately. Its signal can be made audible and used to monitor acutely ill patients continuously. It can be readily applied to localize arterial occlusive disease.

Radarkymography is a non-invasive technique by which asynergistic areas of the left ventricular wall can be detected with accuracy. It is of clinical value in detecting wall motion abnormalities in patients with acute myocardial infarction and coronary artery disease. Since such abnormalities may contribute to the development of heart failure and persistent angina, their detection and evaluation are of considerable importance.

THE SALINE LOAD TEST — ITS USE IN THE DIAGNOSIS AND MANAGEMENT OF GASTRIC RETENTION — *Continued from Page 268*

accumulate additional information which may aid him in his medical management or recommendation for surgical intervention.

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Research in Progress

Effect of Intracardiac Blood on the Vectorcardiogram of the Isolated Perfused Mammalian Heart

CLIFFORD V. NELSON, Ph.D. and BRIAN C. HODGKIN, Ph.D.*

It has been found that the ECG and VCG are significantly influenced by the presence of the intracardiac blood (Circulation Res., *31*:95, 1972). Changes of the VCG in anemia and polycythemia can be partially attributed to this effect. Previous experiments were done in vivo, and the electrical resistivity of the blood was altered by exchange transfusions of packed red cells or plasma. For the isolated heart studies, a cubical container, 20 cm on each side, has been constructed. This box has 36 electrodes on each face, or a total of 216 electrodes. Resistor networks are used to measure the magnitude, direction, and location of the resultant heart-excitation vector. The coronaries of the isolated heart are supplied by blood from an anesthetized donor animal. The container is filled with physiological saline, and the heart cavities are perfused with packed cells or plasma. The resistivities of the perfusion fluid and container fluid can be accurately measured. Changes in the VCG are measured as a function of the resistivity ratio.

This project is supported by Research Grant HL-13942 from the National Heart and Lung Institute.

*Maine Medical Center, Portland, Maine.

County Society Notes

PENOBSCOT

The annual meeting of the Penobscot County Medical Society was held on May 16, 1972 at the Tarratine Club of Bangor with Dr. John S. Houlihan presiding. Approximately 30 members were present.

The minutes of the previous meeting were approved as read.

The formal treasurer's report for the year was approved as presented. Dr. George E. Files motioned that the Penobscot County Medical Society sponsor an EMMC nursing scholarship. It was motioned that this be sent to a reference committee, and the executive committee, for further review.

The delegates were instructed to vote as follows at the annual M.M.A. meeting in June:

a. To support James C. Bates, M.D. for the office of President-elect of the M.M.A.

b. Not to support the following resolution.
"Be it resolved that the citizens of Androscoggin County, State of Maine recommend the Maine Medical Association that utilization/review practice not be provided by private practitioners of Maine to the private insurance industry as is required under law for recipients of public funds, i.e., Title 19, Old Age Assistance and Medicare (Federal Social Securities)."

c. To support the following resolution.
"Therefore, be it resolved that the Androscoggin County Medical Society recommend that the Maine Medical Association investigate whether or not Utilization Review is on par with private hospitals. If it is not, then efforts should be as advised to enforce one system and not a double standard. (Ref-VA Hospitals, particularly Togus)."

d. Not to support the motion that dues be increased from 100 to 125 dollars a year; this additional 25 dollars to be earmarked for the Maine Medical Education Foundation.

A nominating committee composed of Drs. John S. Houlihan, Charles D. McEvoy, Jr. and George W. Wood, III as appointed by the President-elect Dr. Shapero propose the following officers:

President: Dr. Benjamin L. Shapero, Bangor
President-elect: Dr. Dexter J. Clough, 2nd, Bangor
Secretary: Dr. Robert L. Burdick, Bangor
Treasurer: Dr. Philip R. Kimball, Bangor
Counsellors: Drs. David M. Sensenig, Bangor (3 yrs.), Hadley Parrot, Bangor (2 yrs.) and Irvin E. Hamlin, E. Millinocket (1 yr.)

From the floor, Dr. Thornton W. Merriam, Jr. was nominated for the office of President-elect and Dr. Walter L. H. Hall was nominated for Counsellor. Upon direction of the Society, the secretary cast one ballot for the elections of Drs. Shapero, Burdick and Kimball. By written secret ballots, Drs. Clough and Senenig were elected.

The Society stressed their appreciation to the outgoing officers. Dr. Robert P. Andrews motioned that an inscribed gavel be

obtained for the retiring President, Dr. John S. Houlihan.

LEWIS E. PHILLIPS, M.D., *Secretary*

At the October 17, 1972 meeting of the Penobscot County Medical Society which was held at the Twin City Motel in Brewer, Maine, the following members were elected to the posts of Delegate and Alternate Delegate as indicated below:

Delegates to the M.M.A. House of Delegates: Drs. Robert P. Andrews, Sidney Chason, Philip G. Hunter, and John S. Houlihan, all of Bangor; John J. Pearson, Old Town. Alternates: Drs. Irvin E. Hamlin, E. Millinocket; Jack N. Meltzer, Gerald A. Metz, Philip R. Kimball and George O. Chase, all of Bangor

Four new members were also elected. They are: Drs. Franklin Bragg, II, Charles Burger, Francis Kittredge and Storer Emmett.

The Society directed correspondence to appropriate members of Congress, urging them to delete chiropractic procedures from eligibility for payment with Federal funds such as Medicare.

A program entitled "Government Programs in Medicine" was presented by Dr. Robert P. Andrews, Dr. Francis Kittredge and Dr. Thornton W. Merriam, Jr. Dr. Andrews discussed in particular three agencies, CHP, RMP and CAP, currently active in Maine in the areas of Health Planning, Health Education and the delivery of Health Services respectively. Dr. Kittredge discussed the concepts of the HMO and the Medical Foundation and indicated the organization under each concept which would be permitted under legislation currently proposed with particular reference to the impact on the physician. He indicated ways in which organized medicine could strengthen its position under these proposals. Dr. Merriam briefly reported recent experience with the impact of the Economic Stabilization Program upon physicians' fees and hospital charges, with particular reference to the stringency and complexity of the regulations concerning increases.

ROBERT L. BURDICK, M.D., *Secretary*

ANDROSCOGGIN

The meeting of the Androscoggin County Medical Association was held at Steckino's Restaurant in Lewiston, Maine on September 21, 1972. The meeting was called to order at 7:00 p.m. by the President, Dr. Thomas F. Shields with 35 members present.

The minutes of the April meeting were read and approved. It was noted that Dr. Charles W. Steele has been awarded the American Medical Association Physician's Recognition Award for 1971. The membership received and discussed the reports of the Delegates on the proceedings of the Maine Medical Association annual meeting in June 1972. Expanded comments were made by Dr. Donald L. Anderson, Executive Committee member for the Seventh District.

The following members were voted into membership of the Androscoggin County Medical Association: Drs. Mahlon R. Mason, Behzad Fakhery and George E. Davis.

Dr. Stephen A. Sokol was appointed by the President as Diabetes Week chairman.

The membership was informed that the October meeting was to be a joint meeting with members of the Androscoggin County Dental and Bar Associations, with Representative William D. Hathaway as guest speaker.

The meeting was adjourned at 8:45 p.m.

RICHARD M. SWENGEL, M.D., *Secretary*

CUMBERLAND

The 370th meeting of the Cumberland County Medical Society was held at the Purpoodock Club in Cape Elizabeth, Maine on September 21, 1972. This was our fourth annual meeting and enjoyed much by those in attendance. The golf tournament, which began at 1:00 p.m., produced several fine prizes for Drs. Carlyle B. Voss, low gross; Winton Briggs, lot net; John T. Libby, second gross; Douglas R. Hill and Stephen E. Monaghan, second low net; and Stanley W. Kent, high gross. The softball game at 5:00 p.m. produced a lively contest between the two top teams in the area. The final score was said to be nine to eight. The house officer team is a tough competitor.

The business meeting was called to order by the President, Dr. Douglas R. Hill at 8:00 p.m. It was motioned, seconded, and voted to omit the reading of the previous minutes. It was motioned, seconded, and voted to approve a donation of one hundred dollars to the Maine Medical Assistants' Association to help maintain their registry. A request for approval to have new bylaws printed in pamphlet form was also approved. Anticipated expense will be about one hundred and sixty dollars.

A resolution on the death of Dr. Ralph A. Getchell was read and will be spread upon our records. An application for transfer of membership from Dr. Floyd B. Goffin from Albany County, New York was approved. First readings of these applicants were made: Drs. David Adams, Harry Bennert, Germain Binette, Edgar Caldwell, Rudy Haak, and William Strauss to active membership. Drs. Marjorie Boyd and Stephen Soreff were moved to junior membership.

Dr. Hill reported that financial backing for a County Society public service television program was available from the A.M.A. A committee will meet next week to discuss this further. Dr. Monaghan then raised several questions related to more complete representation in both political and economic activities of our State Society, either by the President or by a full-time executive director. Following further discussion, it was motioned, seconded, and voted to support this concept with additional funding to be provided by an increase in dues. Dr. Robert E. McAfee, who will attend the next meeting of the M.M.A. executive committee, will present this action for the consideration of the M.M.A.

There being no further business to come before the Society, the meeting was adjourned by Dr. Hill.

ALFRED E. SWETT, M.D., *Secretary*

KNOX

A meeting of the Knox County Medical Society was held on October 3, 1972 at the Sail Loft in Rockport, Maine.

Mr. Lee Pridgen represented the Penobscot Bay Medical Center. Dr. Richard Leck, a member of the Executive Committee representing the Maine Medical Association, was our guest. Dr. Leck is from Bath, Maine.

The minutes of the September meeting were read and accepted.

Dr. Henry O. White introduced Dr. Leck who commented on the recent Executive Committee meeting held at M.M.A. Headquarters in Brunswick. He stated that the Executive Committee discussed the Peer Review organization and that the composition of the group would include osteopaths. There was some discussion as to the disproportionally high number of osteopaths on the State Committee. Dr. Leck commented on further discussion of the new medical school which is still being investigated at the present time.

Old Business: Dr. White summarized the Dana Report. Twenty-seven physicians are committed to moving into the new doctors' office building next to the Penobscot Bay Medical Center and twenty-one of these twenty-seven are interested in ownership. Twenty-two of these physicians indicated interest in helping pay for the Dana Report and each of these men will receive a bill in the amount of $91.00.

Dr. White presented a considerable amount of information concerning the activities of the Penobscot Bay Medical Center. The question of the physicians owning the doctors' office building is now being discussed by the Board of Directors of the Penobscot Bay Medical Center. New schematics of the hospital have been presented, following the meetings between the physicians and the architects two weeks ago. These schematics include

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M.M.A. Committee on Nominations, 1972-1973*

1st District – Thomas Anton, M.D., 5 Graham St., Biddeford 04005
2nd District – George F. Sager, M.D., 7 Bramhall St., Portland 04102
3rd District – Nelson P. Blackburn, M.D., Bath Mem. Hosp., Bath 04530
4th District – Richard L. Chasse, M.D., 18 Park St., Waterville 04901
5th District – John H. Steeves, M.D., Route #3, Skowhegan 04976
6th District – John C. Van Pelt, M.D., 50 Union St., Ellsworth 04605
7th District – Gilbert R. Grimes, M.D., 185 Webster St., Lewiston 04240
8th District – Charles H. Lightbody, M.D., No. Main St., Guilford 04443
9th District – George J. Harrison, M.D., Market Sq., Houlton 04730

This committee will present at least two candidates for the office of President-elect, delegate and alternate delegate to the AMA, and for each position to be filled on the Executive Committee. *In 1973, vacancies occur in District 1 (York County), District 5 (Franklin, Oxford and Somerset Counties), and District 6 (Hancock, Waldo and Washington Counties).* This committee will also present candidates for members of the Standing Committees where there is to be a vacancy. A report of this committee will be given at the Interim Meeting of the House of Delegates before the vote at the next annual meeting of the House of Delegates.

*Appointed by George W. Wood, III, M.D., President

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Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

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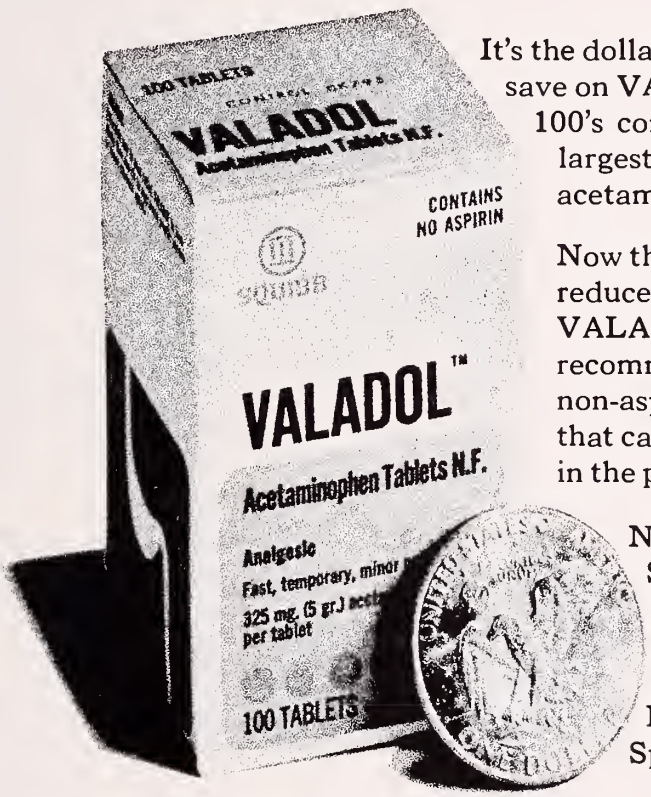


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Precautions: In the elderly and debilitated, and in children over six, limit to smallest effective dosage (initially 10 mg or less per day) to preclude ataxia or oversedation, increasing gradually as needed and tolerated. Not recommended in children under six. Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients and hyperactive aggressive children. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

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